

**Hercules/Dyno Nobel Site
ULSTER COUNTY
PORT EWEN, NEW YORK**

INTERIM SITE MANAGEMENT PLAN

NYSDEC Site Number: 356001

Prepared for:

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

FEBRUARY 2026

CERTIFICATION STATEMENT

I, Kristin A. VanLandingham, certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375] and that this Interim Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).



Kristin A. VanLandingham, P.E.
NY PE LICENSE #089610

2/26/2026

DATE



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SITE MANAGEMENT PLAN

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List of Acronyms

AOC	area of concern
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulation
COC	Certificate of Completion
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
EWP	Excavation Work Plan
HASP	Health and Safety Plan
IC	Institutional Control
ISMP	Interim Site Management Plan
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules, and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
P.E. or PE	Professional Engineer
PID	Photoionization Detector
PRR	Periodic Review Report
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RP	Remedial Party
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SOP	Standard Operating Procedures
SV	Site Visit
SWMU	solid waste management unit
TAL	Target Analyte List
USEPA	United States Environmental Protection Agency

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance, and reporting activities required by this Interim Site Management Plan (ISMP):

Site Identification: 356001 – Hercules/Dyno Nobel Site, Port Ewen, Ulster County, New York

Institutional Controls:	1. The property may be used for commercial and/or industrial use pursuant to the Declaration of Restrictions dated February 18, 2004 (“Deed Restriction”)
Engineering Controls (ECs): All ECs must be inspected at a frequency and in a manner defined in the SMP.	1. Site Fencing
	2. Groundwater Monitoring
	3. Excavation Work Plan (EWP)
Inspections:	Frequency
1. Groundwater Monitoring Wells	Semi-Annually
2. Site Fencing	Annually
Monitoring:	
1. Groundwater Monitoring Wells MW-2B, MW-3, MW-4A, MW-4B, MW-15D, MW-16S, MW-21D, MW-22D, MW-22R, MW-25S, MW-26S, MW-26D, MW-27R and MW-28R	Semi-Annually
2. Surface Water Sample Location SW-1	Semi-Annually

Site Identification: 356001 – Hercules/Dyno Nobel Site, Port Ewen, Ulster County, New York

Maintenance:	
1. Groundwater Monitoring Well Repair	As needed
2. Site Fencing Repair	As needed
Reporting:	
1. Groundwater Monitoring Report	Semi-Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Interim Site Management Plan (ISMP).

1.0 INTRODUCTION

1.1 General

This Interim Site Management Plan (ISMP) is a required element of the remedial program for the Hercules/Dyno Nobel Site located in Port Ewen, New York (hereinafter referred to as the “Site”). See **Figure 1**. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 356001, which is administered by New York State Department of Environmental Conservation (NYSDEC or Department).

Hercules LLC and Dyno Nobel, Inc. (hereinafter referred to as the “Responsible Parties” or RP) entered into an Order on Consent on August 3, 2018 with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided in **Figure 2**. The boundaries of the portions of the site that are included in the current Deed Restriction are more fully described in the metes and bounds site description that is part of the Deed Restriction provided in **Appendix A**. A description of the final Site boundary will be included in the final Environmental Easement that will be prepared as part of the final remedy for the Site.

Responsibilities of the Site owner and/or RP are provided in **Appendix B**.

After completion of the interim remedial measure performed from July 24, 1996 through October 7, 1996, some contamination was left at this site, which is hereafter referred to as “remaining contamination”. Institutional and Engineering Controls (ICs and ECs) will be incorporated into the proposed site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC will be recorded with the Ulster County Clerk as part of the final remedy for the Site and will require compliance with this ISMP (or subsequent versions) and all ECs and ICs placed on the site.

This ISMP was prepared to manage remaining contamination at the site until the final remedy for the Site is complete and a Final SMP is prepared. This plan has been

approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This ISMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- Failure to comply with this ISMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the Order on Consent (Index #CO 3-20180508-85; Site #356001) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in **Appendix C** of this ISMP.

This ISMP was prepared by EHS Support LLC, on behalf of the Responsible Parties, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May, 2010, and the guidelines provided by the NYSDEC. This ISMP addresses the means for implementing the ICs and/or ECs that are required in the interim prior to selection and implementation of the final remedy for the site.

1.2 Revisions and Alterations

Revisions and alterations to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC can also make changes to the SMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a

New York State Professional Engineer. In accordance with the Environmental Easement for the site, the NYSDEC project manager will provide a notice of any approved changes to the ISMP, and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the Order on Consent, 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
5. Notice within 48 hours of any non-routine maintenance activities.
6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this ISMP will include the following notifications:

8. At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Order on Consent, and all approved work plans and reports, including this ISMP.
9. Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 on the following page includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix C**.

Table 1: Notifications*

<u>Name</u>	<u>Contact Information</u>	<u>Required Notification**</u>
Mark Domaracki, P.G., NYSDEC Project Manager	(518) 402-9832 mark.domaracki@dec.ny.gov	All Notifications
Kerry Maloney, P.G., NYSDEC Project Manager's Supervisor	(518) 402-9629 kerry.maloney@dec.ny.gov	All Notifications
Kristin Kulow, NYSDOH Project Manager]	(607) 353-4335 kristin.kulow@health.ny.gov	Notifications 4, 6, and 7

* Note: Notifications are subject to change and will be updated, as necessary.

** Note: Numbers in this column reference the numbered bullets in the notification list in this section.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in Port Ewen, Ulster County, New York and is identified as Portions of Parcel Nos. 56.19-3-13, 56.20-1-6, 63.2-2-1, 63.2-2-8, and 63.2-2-2.300 as shown on **Figure 2**. The site is an approximately 134-acre area and is bounded on all sides by undeveloped property owned by Dyno Nobel, Inc. (see **Figure 2** – Site Layout Map). The owner(s) of the site parcel(s) at the time of issuance of this ISMP is/are:

Dyno Nobel, Inc.

The operator(s) of the site parcel(s) at the time of issuance of this SMP is/are:

Dyno Nobel and/or its subsidiaries

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: buildings, parking areas, roadways, and railroad easement. The Site is zoned commercial and is currently utilized for industrial uses. Site occupants include Maine Drilling and Blasting, a subsidiary of Dyno Nobel.

The properties adjoining and surrounding the Site are undeveloped properties owned by Dyno Nobel. The neighborhoods surrounding the Site primarily include commercial and residential properties. The properties immediately south of the Dyno Nobel properties include residential properties; the properties immediately north of the Dyno Nobel properties include residential properties; the properties immediately east of

the Dyno Nobel properties include commercial and residential properties; and the properties to the west of the Site include undeveloped properties.

2.2.2 Geology

The Site is at an approximate elevation of 160 feet; however, Hussey Hill rises to an elevation of approximately 760 feet along the western border of the Site (**Figure 3**).

Four major geologic deposits are identified under the Site. The uppermost unit consists of a lacustrine silts and clays. The lacustrine silts and clays are encountered at a thickness between 10 and 50 feet). The next unit encountered is ablation glacial till consisting of mostly silts and clay material. The glacial till thickness is variable across the Site between 1 to 28 feet. The third unit encountered is the glacial outwash deposit that consists of sand and gravel deposits. The thickness is inconsistent across the Site, on the western portion of the Site is a suspected buried glacial kame terrace deposit (i.e., north-south running bench of sand and gravel) ranges from 10 to 17 feet in thickness. Additional glacial outwash deposits greater than 1 foot thick are present near the former Shell Plant and within the wetlands complex that represented buried kame (i.e., isolated sand and gravel hill). Across the rest of the Site, the glacial outwash is thin (0.5 feet thick) or not present. Below the glacial outwash is bedrock that consists of a fractured black shale. The bedrock has been uplifted and overturned, the strike is generally north-south, and the dip angle is to the east at approximately 30 to 70 degrees. The bedrock topography varies across the Site from about 10 feet below grade in the wetlands complex area to 60 feet below grade in the center of the Site. The bedrock topography then increases on the far west of the Site where the shale bedrock terminates in a thrust fault. The thrust fault serves as the contact between the shale and quartzite bedrock that makes up Hussey Hill.

A geologic cross section is shown in **Figure 4B**, **Figure 4C** and **Figure 4 D**. Site specific boring logs can be found in the Site documents listed in **Section 2.3.2** and **Section 8** of this ISMP.

2.2.3 Hydrogeology

Groundwater throughout most of the Main Plant Area of the Site is approximately 20 feet (ft) below ground surface (bgs) and is subdivided into three hydrostratigraphic units identified beneath the Site.

- Unit 1 contains the lacustrine silt and clay and the glacial till. This unit is characterized by mostly silt and clay soils with variable loose saturated soils. Unit 1 has a variable thickness of 6 to 80 feet.
- Unit 2 contains the glacial outwash consisting of sands and gravels. Unit 2 has a variable thickness between 0.5 to 14 feet thick.
- Unit 3 contains a fractured shale bedrock aquifer (the Austin Glen formation).

The hydraulic gradient of all three units is generally to the east from the Site toward the Wetland Complex. Groundwater discharges to the Wetlands Complex and follows the surface water flow to the north once in the Wetlands Complex. The estimated horizontal hydraulic gradient for the hydrostratigraphic units is:

- Unit 1 (glacial till) = 0.01 foot per foot
- Unit 2 (glacial outwash) = 0.04 foot per foot
- Unit 3 (bedrock) = 0.03 foot per foot

In the Main Plant Area of the Site, there is an average upward vertical hydraulic gradient between the top and bottom of Unit 1 (silts and clays). There is downward gradient between Unit 1 and Unit 2 (glacial outwash) and a downward gradient between Unit 2 and Unit 3 (bedrock).

The hydraulic conductivity was calculated (estimated) from a series of slug tests performed as part of the RFI. A summary (range) of the hydraulic conductivity values estimated for each hydrostratigraphic unit is as follows:

- Unit 1 (glacial till) = 0.001 ft/day to 8.2 ft/day
- Unit 2 (glacial outwash) = 2 ft/day to 53.9 ft/day
- Unit 3 (bedrock) = 0.2 ft/day (based on one well; MW-1)

Using Darcy's Law and estimates for hydraulic conductivity, horizontal gradient, and effective porosity, groundwater velocity estimates can be calculated. For Unit 1, horizontal gradient is estimated at 0.04 ft/ft, effective porosity is approximately 35% for sand and gravel (Wolff, 1982), and average hydraulic conductivity is 1.1 ft/day. Therefore, these parameters yield an approximate horizontal groundwater velocity of 0.13 ft/day (48 ft/year).

Groundwater elevation contour maps are shown as Figures 5-7. Groundwater elevation data is provided in Table 2. Groundwater monitoring well construction logs are provided in Appendix D.

Groundwater is not used as a source of drinking water on-site; bottled drinking water is available in each building and potable water is provided to the facility by the Port Ewen Water District. Groundwater obtained prior to 2003 from an upgradient well about 1,000 feet southwest of the Shell Plant Building was used for showers, sinks, and sanitation. According to communications from the Environmental Manager at Dyno Nobel, this groundwater source was tested each month for chlorinated compounds and coliform, and at least once a year for lead and other CVOCs. The most recent data from 2002 tests show no detection of CVOCs in the well water.

Off-site, a survey of receptors, including public and private supply wells, are identified on the Environmental Data Resources Inc (EDR) GeoCheck Report included in Appendix E. EDR searched relevant databases for private well information including United States Geological Survey (USGS) well information, federal public water supply database, and state databases. The location of the public and private wells is shown on Error! Reference source not found.. The EDR report identified five private wells in the USGS database and three public supply wells within 1 mile of the Site. There were no wells identified in the State of New York databases. The wells are located between ½ mile to 1 mile north or south of the Site and are positioned side-gradient of the Site.

The five private wells in the USGS database are installed in either bedrock (equivalent to Unit 3) or a sand and gravel aquifer (Unit 2). Both USGS wells to the south of the Site (U1184 and U1183 on **Figure 8**) are installed in the bedrock (**Appendix E**). The USGS wells identified to the north of the Site are installed in the sand and gravel aquifer (Unit 2; U12206 and U1203) and deeper bedrock (U1204 installed at 220 ft bgs). Water well U1183 is in a residential neighborhood, according to Ulster County, New York property records, and the homes in this neighborhood are not on public water; therefore, these wells may be associated with providing drinking water to private residents. Following a public meeting in 2019, one private well owner (Mr. Shultis) provided analytical results for a private well around U1183. The analytical CVOCs concentrations were below the laboratory reporting limits. In addition, the laboratory reporting limits were in the acceptable range for evaluation. The exact location, depth, and hydrostratigraphic unit for this well is unknown.

Public supply wells identified in the Federal Database include two wells (both labeled NY0003382; **Error! Reference source not found.Figure 8**) to the north of the Site owned by Port Ewen Water Department. It is likely there is a single well, the exact location is unknown. According to the 2019 Annual Water Quality Report (Port Ewen Water District, 2020), all the water for the district comes from surface water provided by the Hudson River and groundwater is not used. According to the Port Ewen Water & Sewer Department, the wells were formerly part of the public water system. However, they have not been used since about 1963 when the wastewater treatment plant was built on the Hudson River, and the Hudson River became the sole source for public drinking water. The Port Ewen Water & Sewer Department has indicated that there are no plans to use these wells again.

To the south of the Site there is one public supply well (NY0021830; **Figure 8**) owned by the Hutterian Brethren Society. This well supplies water to 280 people. Based on information provided by NYSDEC, the community to the South (also known as the Bruderhof-Maple Ridge Community) has four wells that provide water to up to 380 people. All four deep wells are installed in bedrock with an average depth greater than

200 ft bgs. Periodic Department of Health-required testing of the wells has not reported any CVOCs at concentrations greater than the NYSDEC Class GA GQS (Chazen Companies, 2019). Chazen Companies (2019) also indicated that drawdown from these wells extends a considerable distance from the pumping wells; however, pump rates or drawdown distances were not provided (Chazen Companies, 2019).

Chazen Companies (2019) reports that the Bruderhof-Maple Ridge Community also operates a shallow bedrock well (referred to as the Pond Well) that is 60 ft deep with 16 ft of open bedrock borehole. This well provided water to an on-site pond. The Pond Well is located approximately 3,200 ft southwest of monitoring well MW-4A.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 – References.

2.3.1 Operational History

Manufacturing operations at the facility involved the manufacture of blasting cap components – consisting primarily of metal shells, insulated wire, and plastic tubing – and the assembly of these components into various types of blasting caps or initiating devices using purchased explosives. Raw materials included explosives, chemicals, uncoated wire, and metal sheets and were procured from off-site sources. Raw explosives were stored as powders under water (to reduce the possibility of explosion) in wooden vats located within an underground concrete vault in the Tank House. As of 1991, explosive materials used at the facility included pentaerythritol tetranitrate (PETN), diazodinitrophenol (DDNP), cyclotrimethylene trinitramine (RDX), cyclotetramethylene tetranitramine (HMX), polymer bound explosive (PBX), tetryl, tetrazene, black powder, nitrocellulose, double base propellant, lead azide, lead mononitro-resorcinol (LMNR), and lead styphnate. These explosive materials were combined with barium salts,

chromates, lead oxides, perchlorates, molybdenum, tungsten, silicon, zirconium, and boron powders to make the desired product. Prior to 1988, additional starting materials – including selenium, tellurium, and lead powders – were used in earlier product designs. Mercury fulminate was formerly used on-site in the production of certain devices prior to the late 1950s.

In addition to using the purchased explosives outlined above, the explosive DDNP was manufactured at the facility. To produce DDNP, picramic acid was diazotized in a batch process using nitric acid. The facility estimated that approximately 150 to 200 pounds of the product were manufactured per batch. The reaction was carried out in a stainless-steel horizontal tank with water as the solvent. The final step of the process was to treat the water by wet oxidation in two stainless-steel treatment tanks. It was then discharged to the local wastewater treatment plant under a pretreatment permit.

Metal stamping and machining operations using aluminum and brass also took place at the facility. Copper was also annealed on-site prior to 1991. Uncoated wire and raw plastics were also used in the manufacturing process.

Waste generated at the facility included process waters, sludges, and wastewaters from explosive powder processing cleanup, off-specification finished product, explosive-contaminated packaging, degreasing solvents, and general household refuse. Early housekeeping practices at the facility are believed to have resulted in the systematic release of wastewater potentially contaminated with any or all the explosive materials and degreaser solvents used over the course of its operational history. Water accumulated in settling basins, containers, and tanks were disposed of on the surrounding soil as a matter of course between 1912 until at least 1972. Degreaser solvents containing trichloroethene (TCE) were stored on-site prior to shipment off-site for disposal; however, historical practices allowed the discharge of these solvents directly to on-site drainage ditches. Testing of detonators also resulted in potential releases.

Past practices allowed for liquid waste discharge directly into drainage sumps on-site while potentially energetic materials were neutralized via open burning and

detonation. Waste energetic materials were washed into waste powder catch basins and collected for neutralization by either burning or detonation. Steam condensate was collected and treated using gravity filtration to recover energetic materials and then discharged to the ground. Water from catch basins, collection tanks, and treated steam condensate was routinely discharged to the ground in the past. The Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) Report (Eckenfelder, 1994) provides additional details regarding historical waste handling and disposal practices, along with specific locations.

During the 1980s and 1990s, production at the facility dropped sharply. In 2003, the number of employees was significantly reduced following a merger of Dyno Nobel with a subsidiary of Ensign-Bickford Industries. The detonator manufacturing ceased at the Site on June 28, 2010. Dyno Nobel personnel who support other company operations continue to occupy the Site administrative buildings. In 2012, Dyno Nobel began leasing the facility to Maine Drilling and Blasting, a joint venture with Dyno Nobel, who provides blasting services for the construction and quarry markets. Maine Drilling and Blasting operations involve the blending of emulsions and ammonium nitrate, storage and distribution of packaged explosives and bulk blasting agents, and on-site maintenance and repairs to company delivery vehicles.

2.3.2 Investigation Summary

A Remedial Investigation (RI) is currently being conducted at the Site. The purpose of the RI is to define the nature and extent of any contamination resulting from previous activities at the Site. The following general activities were and/or are being conducted as part of the RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this Site includes data for:

- groundwater
- surface water
- soil
- sediment
- soil vapor

The solid waste management units (SWMUs) and areas of concern (AOCs) discussed during the following subsections are identified in **Figure 9**.

2.3.2.1 Preliminary Review and Visual Site Inspection

The Initial Site Assessment stage of the RCRA Corrective Action Process for the Site was completed in the 1990s. In 1991, A.T. Kearney, Inc. prepared a draft RCRA Facility Assessment (RFA) under contract with the USEPA. The RFA summarized the preliminary review (PR), and visual site inspection (VSI) activities that took place at the facility on June 11 and 12, 1991. The RFA Report described the facility, its history and operations, waste, and management practices as well as regulatory history and history of releases. The RFA provided the environmental setting and identified solid waste management units (SWMUs) and areas of concern (AOCs), along with providing information about each. The RFA concluded with recommendations for further action. The 1991 RFA identified 30 SWMUs and 4 AOCs.

A second VSI was conducted in June 1993 because additional SWMUs were identified after the first VSI. Subsequently, A.T. Kearney prepared a second draft RFA in July 1993, and a final RFA report was submitted in October 1993 (A.T. Kearney, 1993). Although the USEPA determined the RFA was complete, the NYSDEC identified a number of factual errors contained in the 1993 report, and NYSDEC requested that DYNO Nobel complete another round of revisions to the RFA report prior to undertaking the recommendations. A revised and final RFA was produced by Eckenfelder, Inc. in August 1994. The 1994 RFA (Eckenfelder, 1994) identified 46 SWMUs and four AOCs

and suggested that an RFI be conducted at 23 SWMUs and two AOCs, and confirmatory sampling (or RFA Sampling Visit) be conducted at 13 SWMUs and 2 AOCs.

2.3.2.2 Sampling Visit

Sampling associated with the RFA Sampling Visit (RFA-SV) was conducted during December 17-23, 1996 in accordance with the NYSDEC-approved Sampling Visit Work Plan prepared by Eckenfelder dated May 1995. The work plan called for the investigation of SWMUs 32 and 35 as part of the RFI and added the investigation of SWMUs 14, 15, and 16 to the RFA-SV. Therefore, the RFA-SV included the evaluation of 17 SWMUs and 2 AOCs.

Prior to implementation of the RFA-SV, interim corrective measures (ICM) for explosives were recommended at those SWMUs and AOCs suspected of containing explosive materials in reactive quantities. A discussion of the ICM, RFA-SV, and RFI activities and results are included in the following sections.

2.3.2.3 Site Characterization

In the 1994 RFA (Eckenfelder, 1994), the SWMUs/AOCs were evaluated and given one of the following recommendations:

- No further action (NFA)
- RFA Sampling Visit (RFA-SV)
- RCRA Facility Investigation (RFI)
- Interim Corrective Measure (ICM)

Based on the RFA recommendations, 17 SWMUs/AOCs required an ICM to be implemented on an expedited basis to facilitate investigation as part of the RFI. Two additional SWMUs (47 and 48) were identified and added after the RFA was completed. The RFA also recommended confirmatory sampling (RFA-SV for 19 SWMUs/AOCs) as part of the RFA-SV. Based on the results of the RFA-SV, 10 SWMUs/AOCs were recommended for further investigation under the RFI.

Dyno Nobel entered into an Order on Consent with NYSDEC on April 15, 1996, which stipulated that 25 SWMUs/AOCs be the subject of a RFI. Additionally, 10 SWMUs/AOCs required further investigation as part of a RFI, based on the RFA-SV report (Eckenfelder, 1997b) and one SWMU (SWMU 12) was eliminated from further investigation due to building construction which make this area inaccessible (Eckenfelder, 1997b).

The *RFI Work Plan* (Eckenfelder, 1997b) was approved by NYSDEC for the investigation of 34 SWMUs and four AOCs. The *RFI Report* (Brown and Caldwell, 1999) was submitted in December 1999 and recommended no further action for six (6) SWMUs and further evaluation in a Corrective Measures Study (CMS) for those areas containing constituent concentrations above the established screening criteria. The 1999 RFI Report was approved by NYSDEC in a letter dated July 11, 2000.

Eight additional SWMUs and 11 AOCs were identified and investigated subsequent to the submittal of the 1999 RFI report (Brown and Caldwell, 1999).

2.3.2.4 Supplemental Investigation

Pursuant to a meeting with NYSDEC, New York State Department of Health (NYSDOH), Hercules, Dyno Nobel, and HydroQual Inc. (HydroQual) representatives on July 28, 2005, a Supplement to Corrective Measure Study (2005 Supplement) (HydroQual, 2005) was submitted to NYSDEC. The 2005 Supplement addressed the eight SWMUs (SWMUs 49 through 56) and 11 AOCs (AOCs E through O) identified and investigated since the 1999 RFI Report. A determination of no further action was made for SWMUs 49, 50, 51, 53, and 55 and AOCs E, F, K and L. Additional soil investigations were conducted for SWMUs 52, 54 and 56 and AOCs G, H, I, J, M, N, and O.

2.3.2.5 General RI Results

The data have identified contaminants of concern. A "contaminant of concern" (COC) is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on

the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in **Section 2.3.2.8**. Additionally, the 1999 RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this Site is/are:

- 1,1-dichloroethane
- 1,1-dichloroethene
- acetone
- arsenic
- barium
- cadmium
- copper
- cis-1,2-dichloroethene
- lead
- mercury
- selenium
- trichloroethene (TCE)
- methylene chloride
- 1,1,1-trichloroethane
- 1,2-dichloroethane zinc

As evidenced by the RI, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- sediment
- soil vapor intrusion

A list of all the SWMUs/AOCs and their status is provided in **Table 3**. The locations of all the SWMUs and AOCs along with their associated soil sample locations are provided on **Figure 10A** through **Figure 10E**.

2.3.2.6 Interim Remedial Measures

Interim remedial measures for explosives were undertaken during the period July 24, through October 7, 1996 to address health and safety concerns associated with areas of the Site, which may contain explosives at reactive concentrations. A total of 17 SWMUs were screened by UXB International Inc. for primary and secondary explosives. Two locations were found to contain explosive quantities of both primary and secondary explosives as follows:

- SWMU 41: Detonator Production Building Condensate Collection Sumps
- SWMU 48: Mercury Fulminate Area

Explosive material was removed from these areas until subsequent sampling indicated that explosive quantities were no longer present.

The following three locations were found to contain numerous detonation caps and related debris, which were collected in five-gallon pails for disposal:

- SWMU 1: Shooting Pond
- SWMU 38S: Suspected Grenade Disposal Areas South
- SWMU 38N: Suspected Grenade Disposal Areas North.

These activities are documented in the report entitled *Documentation of Interim Corrective Measures (ICM) for Explosives, Dyno Nobel Facility, Port Ewen, New York* (Eckenfelder, 1997a). The objectives of the IRM for explosives were met and the screened areas were deemed safe for further investigation in the RFA-SV and RFI.

Due to the presence of potential energetic materials, NYSDEC requested, in a letter dated August 21, 2000, that Dyno Nobel install a fence around SWMUs 1, 22 and 35. A proposed fence design was submitted to the NYSDEC and approved in a letter dated August 30, 2000 and approximately 4,300 linear feet of chain-link fence was installed around the three SWMUs.

2.3.2.7 Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the Site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The Fish and Wildlife Resources Impact Analysis (FWRIA) was performed for Site and a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors is presented in the following documents:

- *Ecological Evaluation Site Description Report* (URS, 2007)
- *Fish and Wildlife Impact Analysis Report* (URS, 2009)
- *Fish and Wildlife Impact Analysis Step IIC Investigation Work Plan* (URS, 2010)
- *Summary of Downstream Sampling Results* (URS, 2011a)
- *Fish and Wildlife Impact Analysis Step IIC Investigation Report* (URS, 2011b)

2.3.2.8 Investigation Results

Site soils, sediments, groundwater, and surface water were analyzed for volatile organic compounds (VOCs) and metals as the primary contaminants of concern (COCs) from the RI. Soil vapor was analyzed for VOCs.

Soil:

Throughout the manufacturing site, soil at over 30 SWMUs was found to have some heavy metal contamination. The primary contaminants are mercury and lead. The highest level of mercury was 7,400 ppm (in SWMU 33) and the highest levels of lead was 27,000 ppm (in SWMU 21). Barium, cadmium, and copper were also detected at high

concentrations. The contamination is generally found within the first 2 to 3 feet from the ground surface. Soil contamination has not been determined to be migrating off-site.

A list of all the SWMUs/AOCs and their status is provided in **Table 3**. The locations of all the SWMUs and AOCs along with their associated soil sample locations are provided on **Figure 11A** through **Figure 11E**.

In addition to Site soils, soils within the 100-year floodplain along Plantasia Creek, downstream of the Site are impacted with copper and mercury with concentrations exceeding the residential SCOs. These impacts are generally located at the surface and immediately adjacent to the creek and decrease from upstream to downstream. The 100-year floodplain soil data is provided in **Table 4** and the sample locations are provided on **Figures 12**.

Sediment:

The sediment impacts within the Wetlands Complex are primarily associated with historic waste management practices in and adjacent to the Wetlands Complex. In addition, historic operations at the site located within and immediately adjacent to the site drainageways have led to soil impacts which have migrated into the drainageways and into the Wetlands Complex. The majority of impacted sediment has been deposited in the Wetlands Complex, with the concentrations of impacted sediments rapidly declining downstream (north) of the Wetlands Complex. The primary COCs detected in the Wetlands Complex are mercury, selenium, lead, cadmium, copper, and zinc.

The wetland sediments contained mercury concentrations ranging from non-detect to 240 ppm, and lead from non-detect to 5,400 ppm. This contamination is also restricted to the first few feet below the surface of the sediment but could extend deeper under the SWMUs. Investigation beneath these SWMUs was precluded by the potentially explosive nature of the waste. **Figure 13** provides the results of the wetlands sediment sampling.

Elevated concentrations of copper, lead, mercury, selenium, silver and zinc have also been detected in the sediment in site drainage ways which lead to the Wetlands

Complex. The northern and southern drainageways of the Site transverse the Active Plant Area and discharge to the Wetlands Complex (i.e., wetlands area east of the plant). Concentrations of arsenic, cadmium, copper, lead, mercury, and zinc in the sediment in the drainageways exceeded the SGCs. **Figure 14** provides the results of the sediment sampling from the Site drainageways.

In the stream sediment downstream of the wetland, copper, lead, mercury, and zinc exceed the sediment screening criteria. This contaminated sediment is located in both on-site and off-site areas of Plantasia Creek. The investigation is currently ongoing.

Tables 5-9 and **Figures 13-17** summarize the results of all sediment samples collected that exceed the SCGs.

Groundwater:

Groundwater samples were collected to assess groundwater conditions on-site. Semi-annual groundwater monitoring from select monitoring wells has been performed at the site since 2001. The monitoring well network includes monitoring wells located in the vicinity of the Shell Plant (MW-3, MW-4A, MW-4B, MW-21R (abandoned in 2022), MW-21D, MW-22R, MW-22D, MW-25S, MW-27R, and MW-28R), which are monitored for VOCs, and monitoring wells located downgradient of SWMUs/AOCs located in the northern Active Plant Area (MW-2B, MW-15S, MW-15D, MW-16S, MW-24S, MW-24D, MW-26S, and MW-26D), which are monitored for inorganics.

The results indicate that contamination in shallow and intermediate overburden along with some shallow and intermediate bedrock groundwater at the Site exceeds the SCGs for volatile organic compounds and inorganics. At a depth of about 15 to 25 feet, trichloroethene (TCE) has been found at levels up to 810,000 parts per billion (ppb), which is several orders of magnitude higher than the groundwater water standards of 5.0 ppb. TCE degradation products, including cis-1,2-dichloroethene (cis-1,2-DCE) were also detected above standards. The groundwater investigation indicated that the dissolved VOC plume is located at and east of the Shell Plant trending in an east/southeast direction

and is approximately 400 feet long by 200 feet wide and predominantly west of the rail line. Inorganics, including aluminum, cadmium, cobalt, and selenium exceeded their respective SCGs of 100 ppb, 5 ppb, 5 ppb and 10 ppb, respectively. Groundwater contamination has not migrated off-site based on the groundwater analytical results from two sentinel wells (MW-27R and MW-28R) that were installed in 2022 to ensure that contamination is not migrating off-site to sensitive receptors.

Tables 10, 11A, and 11B summarize the most recent groundwater results. The groundwater monitoring network is provided in **Figure 18**.

Surface Water:

Water entering the Active Plant Area of the Site comes from direct precipitation and runoff from Hussey Hill on the west side of the Site. Surface water flows across the Site primarily through the two drainage ways crossing the Site from west to east. A third drainage way runs across the southern edge of the Active Plant Area. Surface water flows into the Wetlands Complex from both the Active Plant Area and from intermittent and perennial tributaries which feed the Wetlands Complex from the south.

The outlet from the Wetlands Complex is a perennial stream that discharges to an unnamed tributary of Plantasie Creek. This tributary and others of Plantasie Creek flow northward into Rondout Creek approximately two miles north of the site. Rondout Creek discharges into the Hudson River north of Port Ewen, New York (**Figure 1**).

Concentrations of inorganics in filtered samples did not exceed NYSDEC SWQS. Findings indicate that chronic exposure to inorganics concentrations in surface water are not likely to result in adverse effects to aquatic life. No VOCs were detected in surface water during the investigation. Therefore, based on historical and routine sample results, corrective measures for surface water are not required and remediation will be based on the sediments being addressed as part of the proposed remedy.

Surface water results from the semi-annual sampling at location SW-1 shown in **Figure 18** can be found in **Table 11A** and **Table 11B**. Surface water samples were collected from the same locations as the sediment samples shown on **Figures 13-17** and the respective results are provided in **Tables 12** and **13**.

Surface water sampling conducted within the SWMU 1/22 Wetlands Complex and at reference stations concurrent with sediment sampling showed four out of six target inorganics were detected in filtered samples. Detected inorganics included copper, lead, selenium, and zinc. Concentrations of cadmium and mercury were below detection in all filtered samples. Overall, surface water is negligibly impacted on-site, and the proposed remedy will further reduce the potential for future impacts to the surface water.

Soil Vapor:

Because of its proximity to the identified on-site VOC groundwater plume, a soil vapor intrusion investigation was performed at the Shell Plant. In July 2002, four sub-slab soil vapor samples and one indoor air sample were collected at the Shell Plant building. TCE was detected as high as 188 mcg/m³ in a sub-slab soil vapor sample. In March 2007, an indoor and sub-slab soil vapor sample were collected in the same area; TCE was detected in the indoor air sample at a concentration of 0.75 mcg/m³ and in the sub-slab at a concentration of 190 mcg/m³. Based on a review of the data as compared to the NYSDOH Soil Vapor Intrusion Guidance decision matrices, mitigation was recommended. However, it was agreed that annual indoor air monitoring would occur instead of mitigation. At the time, the building was not currently in use and was not occupied. The Shell Plant building was demolished in 2020.

Additionally, an evaluation of the potential for SVI to occur will be completed at the existing office building, the active warehouse, and any existing on-site buildings that become re-occupied or for any proposed new construction. Groundwater and soil sampling data indicate soil vapor contamination does not extend off-site.

2.3.2.7 Summary of Human Exposure Pathways

The site is fenced, and it is unlikely that people will come in contact with contaminants in soil unless they dig below the ground surface. Contaminated groundwater at the site is not used for drinking or other purposes, and the site is served by a public water supply that obtains water from a different source not affected by this contamination. People may come in contact with contamination present in downstream wetland sediments. Volatile organic compounds in the soil or groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The potential exists for people to inhale site contaminants in indoor air due to soil vapor intrusion if the former Shell Plant building is re-occupied or there is further on-site redevelopment or occupancy in the area of the on-site volatile organic compounds groundwater plume. Sampling indicates soil vapor intrusion is not a concern for off-site buildings.

2.4 Remedial Action Objectives

Remedial Action Objectives (RAOs) for the Site are not applicable at this time. ROAs will be developed as part of the final remedy for the Site and listed in the Record of Decision.

2.5 Remaining Contamination

Because a final remedy for the Site has not been approved or implemented, the section is not applicable and current conditions at the Site were previously described in **Section 2.3.2.8**.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the ISMP and is subject to revision by the NYSDEC project manager.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in **Appendix F**) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC project manager.

3.2 Institutional Controls

A series of ICs is required by the existing Deed Restriction (**Appendix A**) to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to commercial/industrial uses only. Adherence to these ICs on the site will be implemented

under this ISMP. ICs identified in the Deed Restriction (**Appendix A**) may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The current IC boundaries are the property boundaries shown on **Figure 2**. These ICs are:

- The property may be used for: commercial and/or industrial use in accordance with the Deed Restriction dated February 18, 2004 (**Appendix A**);
- The use of groundwater underlying the property is prohibited based on the current Deed Restriction (**Appendix A**);
- Groundwater and other environmental or public health monitoring must be performed as defined in this ISMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this ISMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this ISMP;
- Access to the site must be provided to agents, employees, or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- Vegetable gardens and farming on the site are prohibited; and
- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

3.3 Engineering Controls

3.3.1 Excavation Work Plan

The Excavation Work Plan (EWP) provided in **Appendix F** outlines the procedures required to be implemented in the event that excavation of remaining contamination soil and/or sediment (as described in **Section 2.3.2.8**). Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) prepared for specific excavation work and associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in the EWP (**Appendix F**).

Any excavation of remaining contaminated soil and/or sediment must be overseen by a Professional Engineer (PE) who is licensed and registered in New York State or a qualified person who directly reports to a PE who is licensed and registered in New York State.

3.3.2 Fencing

Due to the presence of potential energetic materials, NYSDEC requested, in a letter dated August 21, 2000, that Dyno Nobel install a fence around SWMUs 1, 22 and 35. A proposed fence design was submitted to the NYSDEC and approved in a letter dated August 30, 2000 and approximately 4,300 linear feet of chain-link fence was installed around the three SWMUs (**Figure 2**). In addition, the Main Plant Area of the Site is also fenced (**Figure 2**) and access is restricted with locked gates.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the stability of COCs in Site groundwater.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of groundwater and surface water;
- Assessing compliance with applicable NYSDEC standards, criteria, and guidance (SCGs), particularly groundwater standards

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site –Wide Inspection

Site-wide inspections will be performed semi-annually or at a minimum of once per year. These periodic inspections must be conducted when the ground surface is visible

(i.e., no snow cover). Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State (depending on the need to evaluate engineering controls). Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in **Appendix G – Site Management Forms**. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- Whether stormwater management systems, such as basins and outfalls, are working as designed;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the ISMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and

- If site records are complete and up to date.

Reporting requirements are outlined in **Section 7.0** of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public. The remedial party will submit follow-up status reports to the NYSDEC within 45 days of the event on actions taken to respond to any emergency event requiring ongoing responsive action, describing, and documenting actions taken to restore the effectiveness of the ECs.

4.3 Groundwater and Surface Water Monitoring and Sampling

Samples shall be collected from the Site groundwater and surface water on a routine basis. Sampling locations, required analytical parameters and schedule are provided in **Table 14** – Groundwater and Surface Water Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

Table 14 – Groundwater and Surface Water Sampling Requirements and Schedule

Sampling Location	Schedule		
	VOCs (EPA Method 8260C)	TAL Metals (EPA Method 6010C/7470A)	Frequency
MW-3	X		Semi-Annually
MW-4A	X		Semi-Annually
MW-4B	X		Semi-Annually
MW-21-D	X		Semi-Annually
MW-22D	X		Semi-Annually
MW-22R	X		Semi-Annually
MW-25S	X		Semi-Annually
MW-27R	X		Semi-Annually
MW-28R	X		Semi-Annually
MW-2B		X	Semi-Annually
MW-15D		X	Semi-Annually
MW-15S		X	Semi-Annually
MW-16S		X	Semi-Annually
MW-24S		X	Semi-Annually
MW-24D		X	Semi-Annually
MW-26S		X	Semi-Annually
MW-26D		X	Semi-Annually
Surface Water Location SW-1		X	Semi-Annually

Figure 16 shows the locations of the groundwater monitoring wells and the surface water monitoring location.

4.3.1 Groundwater Sampling

Groundwater monitoring will be performed semi-annually to assess the stability of COC concentrations in Site groundwater. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

The network of monitoring wells has been installed to monitor upgradient, source area and downgradient groundwater conditions at the site. **Figure 18** shows the locations

of the groundwater monitoring wells. The network of on-site wells has been designed based on the following criteria:

- Monitoring wells MW-15S, MW-16S, MW-24S, and MW-26S monitor metals in Site shallow glacial till (Unit 1) groundwater
- Monitoring wells MW-2B, MW-15D, MW-24D, and MW-26D monitor metals in Site glacial outwash (Unit 2) groundwater
- Monitoring wells MW-3, MW-4A, and MW-25S monitor VOCs in Site glacial till (Unit 1) groundwater in the area of the former Shell Plant
- Monitoring wells MW-4B, MW-21D, and MW-22D monitor VOCs in Site glacial outwash (Unit 2) groundwater in the area of the former Shell Plant
- Monitoring wells MW-22R, MW-27R, and MW-28R monitor VOCs in the bedrock groundwater (Unit 3) in the area of the former Shell Plant.

The monitoring well network includes two sentinel wells that monitor downgradient plume migration. Sentinel wells are uncontaminated wells located directly downgradient of the plume and upgradient of sensitive receptors. The monitoring well network for this site includes the following sentinel wells: MW-27R and MW-28R.

Table 15 summarizes the wells' identification numbers, as well as the purpose, location, depths, diameter, and screened intervals of the wells. As part of the groundwater monitoring, seventeen (17) wells are sampled to evaluate Site groundwater quality and stability. The remedial party will measure depth to the water table for each monitoring well in the network before sampling.

Table 15 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (NAD 1983 State Plane NY East ft)	Well Diameter (inches)				
				Top of Casing Elevation (ft msl)	Surface Elevation (ft msl)	Screen Top (ft bgs)	Screen Bottom (ft bgs)
MW-3	Source Area	631997.593 7, 1110635.50 4	2	167.20	--	16	26
MW-4A	Source Area	632226.578, 1110484.27 8	2	158.90	--	13.5	23.5
MW-4B	Source Area	632217.660 9, 1110588.26 9	2	158.30	--	17	27
MW-21D	Source Area	632043.186 1, 1110725.94 9	2	164.10	--	49	59
MW-22D	Down-gradient	632333.692 5, 1110688.15 4	2	151.90	--	27	32
MW-22R	Down-gradient	632340.949 2, 1110688.19 7	4	151.60	--	35.5 (open)	54.5 (open)

MW-25S	Down- gradient	632348.282 8, 1110589.05 2	2	159.71	--	10	30
MW-27R	Down- gradient	632085.33, 1110730.29	4	164.82	--	67.5 (open)	150
MW-28R	Down- gradient	632077.29, 1110016.58	4	168.43	--	77.5 (open)	135 (open)
MW-2B	Source Area	631505.500 8, 1112551.34	2	171.70	--	17	27
MW-15D	Source Area	631854.923 9, 1112711.57 4	2	162.00	--	24	29
MW-15S	Source Area	631854.322 7, 1112725.44 3	2	162.00	--	10.5	20.5
MW-16S	Down- gradient	632564.453, 1112287.16 5	2	159.30	--	15	25
MW-24S	Down- gradient	632204.561 3, 1112921.75 7	2	157.19	--	10	20
MW-24D	Down- gradient	632204.515 5, 1112929.38 7	2	157.21	--	30	40

MW-26S	Down-gradient	632276.246 2, 1112549.70 7	2	154.49	--	10	20
MW-26D	Down-gradient	632284.501 5, 1112556	2	153.70	--	48	58

Figure 16 shows the locations of the groundwater monitoring wells. Monitoring well construction logs are included in **Appendix D** of this document. A final post-remedy groundwater monitoring program will be proposed as part of the final groundwater remedy for the Site.

If biofouling or silt accumulation occurs in the on-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC project manager will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC project manager. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC project manager.

The sampling frequency may only be modified with the approval of the NYSDEC project manager. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC project manager.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.3.2 Surface Water Sampling

Surface water sampling at location SW-1 will be performed semi-annually to assess the quality of surface water exiting the Wetlands Area (**Figure 18**). Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

The surface water sample location has been designed based on the following criteria:

- Location SW-1 is downgradient of the Wetlands Complex.

The sampling frequency may only be modified with the approval of the NYSDEC project manager. This ISMP will be modified to reflect changes in sampling plans approved by the NYSDEC project manager.

Deliverables for the surface water sampling program are specified in Section 7.0 – Reporting Requirements.

4.3.3 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in **Appendix G** – Site Management Forms. Other observations (e.g., groundwater monitoring well integrity) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail

regarding monitoring and sampling protocols are provided in the Standard Operating Procedures provided as **Appendix H** of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The site remedy has not been implemented; therefore, there are no mechanical systems, such as groundwater treatment systems, sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this ISMP.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a current vulnerability assessment that evaluates the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding. This section also identifies vulnerability assessment updates that will be conducted for the site in Periodic Review Reports.

Because a final remedy is not currently in place at the Site, the only ECs currently in place are fencing, groundwater monitoring, and an EWP as discussed in earlier sections of this ISMP. These ECs are not vulnerable to extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise.

The Site is not located within the FEMA 100-year floodplain as shown on **Figure 19A**. However, the portion of Plantasie Creek downstream of the Wetlands Complex is located within the 100-year floodplain as shown on **Figure 19B**. The Site is not located near a shoreline and is, therefore, not susceptible to sea level rise or storm surge events.

The Site drains into the Wetlands Complex, located east of the Site, via several drainage ways (**Figure 3**). The Wetlands Complex drains into Plantasie Creek which runs

through the Wetlands Complex and discharges into Rondout Creek located north of the Site (**Figure 19B**).

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. Because the remedy has not been implemented at the Site at this time, this section is not applicable at the time of this ISMP. NYSDEC's DER-31 Green Remediation guidance will be considered during future remedy selection, remedy implementation, and long-term Site management.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in **Appendix G**. These forms are subject to NYSDEC revision. All site management inspection, maintenance, and monitoring events will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State (depending on the need to evaluate engineering controls).

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of **Table 16** and summarized in the applicable report.

Table 16: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection Report	Semi-Annually
Groundwater Monitoring Report	Semi-Annually, or as otherwise determined by the NYSDEC

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC project manager.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQUIS™ database in accordance with the requirements found at this link <http://www.dec.ny.gov/chemical/62440.html>.

8.0 REFERENCES

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TABLES

**TABLE 3
STATUS OF SOLID WASTE MANAGEMENT UNITS (SWMUs) AND AREAS OF CONCERN (AOCs)**

**Hercules Site
Port Ewen, New York**

SWMU/AOC	Description	Status
Solid Waste Management Units (SWMUs)		
1/22	Wetlands Complex	CM
1	Shooting Pond	CM
2	Burning Cage/Incinerator	CM
3	Copper Wire Burning Area	CM
4	Iron Wire Burning Area	CM
5	Wire Burning Area III	CM
6	Open Burning Pads	CM
7	Open Burning Pads	CM
8	Former Burning Area	CM
9	Waste Powder Catch Basins - Building 2037	CM
10	Waste Powder Catch Basins - Building 2048	CM
11	Waste Powder Catch Basins - Building 2049	CM
12	Waste Powder Catch Basins - Weber City Building	NFA
13	Former Waste Powder Catch Basins - Lead Azide Building	CM
14	Waste Powder Magazine - Building 9222	NFA
15	Waste Powder Magazine - Building 9216	NFA
16	Waste Powder Magazine - Building 3002	NFA
17	Former Waste Storage Trailer	NFA
18	Former Waste Degreaser Storage Building Area	NFA
19	New Waste Degreaser Storage Building Area	NFA
20	Former Empty Drum Storage Area	NFA
21	Lead Recycling Unit Area	CM
22	Former Landfill	CM
23	Former Dump	CM
24	Former Wastewater Treatment Facility	NFA
25	New Wastewater Treatment Facility	NFA
26D	Burnable Waste Satellite Accumulation Area	CM
26E	Burnable Waste Satellite Accumulation Area	CM
26F	Burnable Waste Satellite Accumulation Area	NFA
26G	Burnable Waste Satellite Accumulation Area	CM
27	Sanitary Sewer System	NFA
28	Scrap Metal Area	NFA
29	Drainage Ditch (Downgrade of Building 2049)	CM
30	Drainage Ditch (Downgrade of Building 2036)	NFA
31	Old Well House	NFA
32	Old Dump (near water tower)	CM
33	Mercury Fulminate Tanks Area	CM
34	Old Waste Burning Grounds (near Shooting Pond)	NFA
35	Stone Fence Dump	CM
36	Pellet House Septic Tank	NFA
37	Former Shell Plant Drum Storage Area	NFA
38N	Grenade Disposal Area	NFA
38S	Grenade Disposal Area	NFA
39	Former Washwater Discharge Area - Building 2009	CM
40	Pilot Line Condensate Collection Sump	CM

**TABLE 3
STATUS OF SOLID WASTE MANAGEMENT UNITS (SWMUs) AND AREAS OF CONCERN (AOCs)**

**Hercules Site
Port Ewen, New York**

SWMU/AOC	Description	Status
41	Detonator Production Building Condensate Collection Sumps	NFA
42	SAC Building Steam Collection Containers	CM
43	Lab Annex Condensate Collection Sump	NFA
44	Lead Azide Building Washwater Settling Tank	NFA
45	Washwater Collection Tanks - Building 2009	NFA
46	Vacuum Line Condensate Collection Sump - Building 2059	CM
47	Building 2058 Fuse Room	CM
48	Mercury Fulminate Area	CM
49	Building 2073 Sump	NFA
50	Building 2075 Sump	NFA
51	Construction Stockpiles	NFA
52	Former Commercial Lab Shooting Area	CM
53	Package Burn Test Area	NFA
54	Former Historical Production Area	CM
55	Former ANFO Area	NFA
56	Vent System for Static Security Testing Chamber	CM
Areas of Concern (AOCs)		
A	Kerosene Tank Leak	CM
B	Open Burning Pads Area	CM
C	Open Detonation Pit	CM
D	Detonation Test Building	CM
E	Former Building 2073	NFA
F	Building 2075	NFA
G	Former Drying House	CM
H	Former Drying House	CM
I	Roof Drainage from Deto Building	CM
J	Former Drying House	CM
K	Former Drying House	NFA
L	Former Drying House	NFA
M	Former Drying House	CM
N	Former Drying House	CM
O	Former Drying House	CM

Notes:

CM = Corrective Measures

NFA = No Further Action

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T01A	T01A	T01A	T01A	T01B	T01B	T01B	T01B	T01C	
				Sample ID	T01A-0-6	T01A-0-12	T01A-6-12	T01A-12-24	T01B-0-6	T01B-0-12	T01B-6-12	T01B-12-24	DUP-10	
				Sample Date	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	05 Oct 2023					
				Sample Depth	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	FD	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	<u>180</u>		34	17	<u>450</u>		<u>110</u>	<u>180</u>	<u>2300 J</u>	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	<u>2 J</u>		0.14 J	0.073 J	<u>1.5 J</u>		<u>1.1 J</u>	<u>0.87 J</u>	<u>19 J</u>	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	2.9		1.2	0.83	2.3		0.69	0.85	<u>8.6 J</u>	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	100		91	<u>110</u>	<u>150</u>		90	<u>120</u>	<u>310 J</u>	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU		6.9 J				6.7 J				
Temperature	TEMP			deg c		21.1 J				21.1 J				
Total Organic Carbon	TOC			mg/kg		27000				17000				
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%		94.3				91.2				
Gravel	GRAVEL			%		0				0				
Sand	308075-07-2			%		5.7				8.8				
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T01C	T01C	T01C	T01C	T01C	T01D	T01D	T01D	T01D	
				Sample ID	T01C-0-6	DUP-11	T01C-0-12	T01C-6-12	T01C-12-24	T01D-0-6	T01D-0-12	T01D-6-12	T01D-12-24	
				Sample Date	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	
				Sample Depth	0-6in	6-12in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	FD	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	<u>2100 J</u>		<u>220</u>		<u>350</u>	18	<u>200 J</u>		<u>110 J</u>	35
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	<u>24 J</u>		<u>0.77 J</u>		<u>3.2 J</u>	0.096 J	<u>1.6 J</u>		<u>0.35 J</u>	0.1 J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	<u>7.7 J</u>		1.6		2.2	0.8	1.1		0.76	0.61
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	<u>330 J</u>		95		<u>130</u>	87	<u>110 J</u>		<u>120 J</u>	82
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU			7.6 J				6.7 J			
Temperature	TEMP			deg c			21.1 J				21.5 J			
Total Organic Carbon	TOC			mg/kg			42000				20000			
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%			85.2				69.3			
Gravel	GRAVEL			%			0				0			
Sand	308075-07-2			%			14.8				30.7			
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T01E	T01E	T01E	T01E	T02A	T02A	T02A	T02A	T02B	
				Sample ID	T01E-0-6	T01E-0-12	T01E-6-12	T01E-12-24	T02A-0-6	T02A-0-12	T02A-6-12	T02A-12-24	T02B-0-6	
				Sample Date	05 Oct 2023	05 Oct 2023	05 Oct 2023	05 Oct 2023	07 Oct 2023					
				Sample Depth	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	26	J			23	J	18		17	J
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.17	J			0.094	J	0.049	J	0.12	J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.49	J			0.54		0.74		0.88	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	76	J			83	J	89		80	J
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU			7	J					7	J
Temperature	TEMP			deg c			21.5	J					21.1	J
Total Organic Carbon	TOC			mg/kg			22000						26000	
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%			58.9						94.2	
Gravel	GRAVEL			%			3.5						0	
Sand	308075-07-2			%			37.6						5.8	
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T02B	T02B	T02B	T02C	T02C	T02C	T02C	T02D	T02D	
				Sample ID	T02B-0-12	T02B-6-12	T02B-12-24	T02C-0-6	T02C-0-12	T02C-6-12	T02C-12-24	T02D-0-6	T02D-0-12	
				Sample Date	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	
				Sample Depth	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg			<u>520 J</u>	<u>110</u>	<u>1600 J</u>		<u>280 J</u>	24	<u>1800 J</u>	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg			<u>5.6 J</u>	<u>1 J</u>	<u>8.6 J</u>		<u>1.4 J</u>	0.093 J	<u>12 J</u>	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg			2.3	1.3	<u>4.2</u>		1.9	1.9	<u>5</u>	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg			<u>190 J</u>	<u>110</u>	<u>290 J</u>		94 J	81	<u>280 J</u>	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU	6.9 J				7 J					6.9 J
Temperature	TEMP			deg c	21.3 J				21.5 J					21.7 J
Total Organic Carbon	TOC			mg/kg	33000				39000					35000
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%	84.6				85.3					87.3
Gravel	GRAVEL			%	0				0					0
Sand	308075-07-2			%	15.4				14.7					12.7
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T02D	T02D	T02E	T02E	T02E	T02E	T02F	T02F	T02F	
				Sample ID	T02D-6-12	T02D-12-24	T02E-0-6	T02E-0-12	T02E-6-12	T02E-12-24	T02F-0-6	T02F-0-12	T02F-6-12	
				Sample Date	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	07 Oct 2023	
				Sample Depth	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	<u>130 J</u>		16		20 J		17 J		17	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	<u>1.4 J</u>		0.082 J		0.14 J		0.1 J		0.03 J	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	1.8		0.97		0.64		0.7		0.48	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	96 J		76		74 J		76 J		74	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU					6 J				6.9 J	
Temperature	TEMP			deg c					21.2 J				21.2 J	
Total Organic Carbon	TOC			mg/kg					25000				16000	
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%					86.5				92.1	
Gravel	GRAVEL			%					0				0	
Sand	308075-07-2			%					13.5				7.9	
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T02F	T03A	T03A	T03A	T03A	T03B	T03B	T03B	T03B	
				Sample ID	T02F-12-24	T03A-0-6	T03A-0-12	T03A-6-12	T03A-12-24	T03B-0-6	T03B-0-12	T03B-6-12	T03B-12-24	
				Sample Date	07 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	07 Dec 2022	07 Dec 2022	07 Dec 2022	07 Dec 2022	
				Sample Depth	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in bgs	0-12in bgs	6-12in bgs	12-24in bgs	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	18		31 J		16 J	20	20 J		13	16
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.025 J		0.15 J		0.15 J	<u>0.19 J</u>	<u>0.23 J</u>		0.12 J	0.11 J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.51		0.74		0.71	1.3	1.8 J		1.6	0.96
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	71		89 J		86 J	<u>180</u>	<u>190 J</u>		<u>180 J</u>	<u>320 J</u>
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU								6.6 HF		
pH	PH			SU			5.7 J					6.6 HF		
Temperature	TEMP			deg c			21.6 J					23.6 HF		
Total Organic Carbon	TOC			mg/kg			35000					31000		
GEOPHYSICAL														
Clay	CLAY			%								24.7		
Fines	FINES			%			91.8							
Gravel	GRAVEL			%			0					0.7		
Sand	308075-07-2			%			8.2					25.2		
Silt	E52456985			%								49.4		

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T03C	T03C	T03C	T03C	T03D	T03D	T03D	T03D	T03E	
				Sample ID	T03C-0-6	T03C-0-12	T03C-6-12	T03C-12-24	T03D-0-6	T03D-0-12	T03D-6-12	T03D-12-24	T03E-0-6	
				Sample Date	07 Dec 2022	07 Dec 2022	07 Dec 2022	07 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	06 Dec 2022	
				Sample Depth	0-6in bgs	0-12in bgs	6-12in bgs	12-24in bgs	0-6in bgs	0-12in bgs	6-12in bgs	12-24in bgs	0-6in bgs	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	11		16	23	<u>420</u>		46	42	<u>760</u>	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.14 J		0.051 J	0.055 J	<u>4.5 J</u>		<u>0.96 J</u>	<u>0.6 J</u>	<u>5.2 J</u>	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.7		0.43 J	0.19 J	2.3		1.9	1.5	2.7	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	72 J		61 J	70 J	<u>160 J</u>		<u>120 J</u>	<u>110 J</u>	<u>220 J</u>	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU			6.8 HF				6.9 HF			
pH	PH			SU			6.8 HF				6.9 HF			
Temperature	TEMP			deg c			23.5 HF				23.8 HF			
Total Organic Carbon	TOC			mg/kg			13000				19000			
GEOPHYSICAL														
Clay	CLAY			%			28.1				12.1			
Fines	FINES			%										
Gravel	GRAVEL			%			0.2				0.1			
Sand	308075-07-2			%			20				25.3			
Silt	E52456985			%			51.7				62.5			

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Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	T03E		T03E		T03E		T03F		T03F		T03F		T03F		T04A		T04A	
					Sample ID	Sample Date	Sample Depth	Sample Type (N: Normal; FD: Field Duplicate)	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS																						
Copper	7440-50-8	<u>50</u>	270	mg/kg			<u>88</u>	17	20		7.4	18	17 J									
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg			<u>1 J</u>	0.12 J	0.07 J		0.057 J	0.066 J	0.086 J									
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg			1.8	1	0.59		0.4	0.39 J	0.56									
Zinc	7440-66-6	<u>109</u>	2200	mg/kg			<u>110 J</u>	<u>110 J</u>	79 J		63 J	68 J	85 J									
GENERAL CHEMISTRY																						
Corrosivity	CORROS			SU	6.4 HF					7.6 HF												
pH	PH			SU	6.4 HF					7.6 HF												8 J
Temperature	TEMP			deg c	23.5 HF					23.6 HF												21 J
Total Organic Carbon	TOC			mg/kg	16000					22000												16000
GEOPHYSICAL																						
Clay	CLAY			%	18.9					25.6												
Fines	FINES			%																		93
Gravel	GRAVEL			%	1.7					0												0
Sand	308075-07-2			%	28.9					10.1												7
Silt	E52456985			%	50.5					64.3												

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Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T04A	T04A	T04B	T04B	T04B	T04B	T04C	T04C	T04C	
				Sample ID	T04A-6-12	T04A-12-24	T04B-0-6	T04B-0-12	T04B-6-12	T04B-12-24	T04C-0-6	DUP-04	T04C-0-12	
				Sample Date	04 Oct 2023	08 Dec 2022	08 Dec 2022	08 Dec 2022						
				Sample Depth	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in bgs	6-12in bgs	0-12in bgs	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	FD	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	15		21		17		18		21	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.052 J		0.048 J		0.14 J		0.074 J		0.054 J	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.58		0.27 J		0.65		0.94		0.87	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	72		67		90		99		94	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										6.9 HF
pH	PH			SU					7.3 J					6.9 HF
Temperature	TEMP			deg c					21 J					23.7 HF
Total Organic Carbon	TOC			mg/kg					26000					19000
GEOPHYSICAL														
Clay	CLAY			%										22
Fines	FINES			%					88.9					
Gravel	GRAVEL			%					0					0.4
Sand	308075-07-2			%					11.1					19.4
Silt	E52456985			%										58.2

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Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T04C	T04C	T04D	T04D	T04D	T04D	T04F	T04F	T04F	
				Sample ID	T04C-6-12	T04C-12-24	T04D-0-6	T04D-0-12	T04D-6-12	T04D-12-24	T04F-0-6	T04F-DUP-02	T04F-0-12	
				Sample Date	08 Dec 2022	08 Dec 2022	08 Dec 2022	08 Dec 2022	08 Dec 2022	08 Dec 2022	08 Dec 2022	08 Dec 2022	08 Dec 2022	
				Sample Depth	6-12in bgs	12-24in bgs	0-6in bgs	0-12in bgs	6-12in bgs	12-24in bgs	0-6in bgs	0-12in bgs	0-12in bgs	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	FD	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	<u>60</u>		21		<u>95</u>		<u>650</u>		<u>130</u>	28
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	<u>0.51 J</u>		0.17 J		<u>0.82 J</u>		<u>4.3 J</u>		<u>1.4 J</u>	0.089 J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.99		0.97		0.68		0.91		0.64	0.25 J
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	85 J		74 J		<u>120 J</u>		<u>160 J</u>		<u>110 J</u>	84 J
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU					7.7 HF					7.5 HF
pH	PH			SU					7.7 HF					7.5 HF
Temperature	TEMP			deg c					23.6 HF					23.6 HF
Total Organic Carbon	TOC			mg/kg					23000					8000
GEOPHYSICAL														
Clay	CLAY			%					15.1				7	7.3
Fines	FINES			%										
Gravel	GRAVEL			%					13.8				10.2	15.9
Sand	308075-07-2			%					44.9				47.9	46.7
Silt	E52456985			%					26.2				34.9	30.1

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Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T04F	T04F	T05A	T05A	T05A	T05A	T05B	T05B	T05B	
				Sample ID	T04F-6-12	T04F-12-24	T05A-0-6	T05A-0-12	T05A-6-12	T05A-12-24	T05B-0-6	T05B-0-12	T05B-6-12	
				Sample Date	08 Dec 2022	08 Dec 2022	01 Oct 2023							
				Sample Depth	6-12in bgs	12-24in bgs	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	29		31		12		12		14	<u>130</u>
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.071 J		0.089 J		0.057 J		0.035 J		0.048 J	<u>1.1</u>
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.19 J		0.18 J		0.33 J		0.3 J		0.33 J	0.99
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	80 J		79 J		57		60		56 J	<u>120</u>
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU					6.3 J				6.5 J	
Temperature	TEMP			deg c					21.3 J				21.6 J	
Total Organic Carbon	TOC			mg/kg					12000				24000	
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%					85.6				89	
Gravel	GRAVEL			%					0				0	
Sand	308075-07-2			%					14.4				11	
Silt	E52456985			%										

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Plantasie Creek Floodplain Soil Data
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Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T05B	T05C	T05C	T05C	T05C	T05C	T06A	T06A	T06A	
				Sample ID	T05B-12-24	DUP-05	T05C-0-6	T05C-0-12	T05C-6-12	T05C-12-24	T06A-0-6	DUP-06	T06A-0-12	
				Sample Date	01 Oct 2023	01 Oct 2023	01 Oct 2023	01 Oct 2023	01 Oct 2023	01 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	
				Sample Depth	12-24in	0-6in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	0-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	FD	N	N	N	N	N	FD	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	19		<u>130</u>	<u>130</u>			48	12	11	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.11 J		<u>0.75</u>	<u>0.73 J</u>			<u>0.33</u>	0.069 J	0.055 J	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.72		1.4	1.4			1.3 J	0.86	0.42 J	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	77 J		<u>120</u>	<u>120</u>			97	85 J	61	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU				7 J					6 J	6.6 J
Temperature	TEMP			deg c				21.3 J					21.3 J	21.2 J
Total Organic Carbon	TOC			mg/kg				34000					14000	13000
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%				85.4						86.9
Gravel	GRAVEL			%				0						0
Sand	308075-07-2			%				14.6						13.1
Silt	E52456985			%										

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Plantasie Creek Floodplain Soil Data
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Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T06A	T06A	T06B	T06B	T06B	T06B	T06C	T06C	T06C	
				Sample ID	T06A-6-12	T06A-12-24	T06B-0-6	T06B-0-12	T06B-6-12	T06B-12-24	T06C-0-6	T06C-0-12	T06C-6-12	
				Sample Date	02 Oct 2023									
				Sample Depth	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	11		17		10		12		25	<u>350</u>
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.061 J		0.04 J		0.074 J		0.039 J		0.046 J	<u>2.2</u>
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.38 J		0.26 J		0.61		0.79		0.2 J	2.1
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	52 J		53 J		65		59 J		70 J	<u>170</u>
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU					5.8 J				6 J	
Temperature	TEMP			deg c					21.3 J				21.3 J	
Total Organic Carbon	TOC			mg/kg					14000				28000	
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%					92.1				73.1	
Gravel	GRAVEL			%					0				0	
Sand	308075-07-2			%					7.9				26.9	
Silt	E52456985			%										

Table 4
 Plantasie Creek Floodplain Soil Data
 Plantasie Creek Interim Floodplain Investigation Report
 Dyno Nobel Port Ewen Site
 Port Ewen, NY

				Location ID	T06C	T06C	T07.5A	T07.5A	T07.5A	T07.5A	T07.5B	T07.5B	T07.5B	
				Sample ID	DUP-07	T06C-12-24	T07.5A-0-6	T07.5A-0-12	T07.5A-6-12	T07.5A-12-24	T07.5B-0-6	T07.5B-0-12	T07.5B-6-12	
				Sample Date	02 Oct 2023	02 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	
				Sample Depth	12-24in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	FD	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	29		28		19		17		14	<u>110</u>
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.16		0.16		0.096		0.077		0.046 J	<u>0.52</u>
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	1.4		1.3		0.5		0.38		0.31 J	1.9
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	<u>110 J</u>		<u>110 J</u>		74		62		58 J	<u>130</u>
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU					6.4 J				6.9 J	
Temperature	TEMP			deg c					21.4 J				21.4 J	
Total Organic Carbon	TOC			mg/kg					19000 J				25000	
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%					88.5				84.8	
Gravel	GRAVEL			%					0				0	
Sand	308075-07-2			%					11.5				15.2	
Silt	E52456985			%										

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Plantasie Creek Floodplain Soil Data
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Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T07.5B	T07.5C	T07.5C	T07.5C	T07.5C	T07.5D	T07.5D	T07.5D	T07.5D	
				Sample ID	T07.5B-12-24	T07.5C-0-6	T07.5C-0-12	T07.5C-6-12	T07.5C-12-24	T07.5D-0-6	T07.5D-0-12	T07.5D-6-12	T07.5D-12-24	
				Sample Date	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	
				Sample Depth	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	10		<u>1200</u>		<u>260</u>	19	<u>580</u>		<u>1400</u>	28
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.11		<u>6.9</u>		<u>1.3</u>	0.092	<u>2.5</u>		<u>4.7</u>	0.13
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	1.1		1.7		2.2	0.99	2.2		1.3	0.25 J
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	91 J		<u>220</u>		<u>170</u>	78 J	<u>220</u>		<u>190 J</u>	86 J
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU			6.3 J				7 J			
Temperature	TEMP			deg c			21.4 J				21.2 J			
Total Organic Carbon	TOC			mg/kg			32000				32000			
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%			85.1				85.5			
Gravel	GRAVEL			%			0				0			
Sand	308075-07-2			%			14.9				14.5			
Silt	E52456985			%										

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Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T07A	T07A	T07A	T07A	T07B	T07B	T07B	T07B	T07C	
				Sample ID	T07A-0-6	T07A-0-12	T07A-6-12	T07A-12-24	T07B-0-6	T07B-0-12	T07B-6-12	T07B-12-24	T07C-0-6	
				Sample Date	03 Oct 2023	03 Oct 2023	03 Oct 2023	03 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	
				Sample Depth	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	<u>170</u>		32	32	24 J		18	15	16 J	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	<u>0.6</u>		0.16	0.09	0.081 J		0.13	0.07 J	0.093 J	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.67		0.24 J	0.87	0.85 J		0.79	0.87	0.84	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	100		76 J	98 J	<u>110 J</u>		87 J	84 J	80 J	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU			8.1 J				6.7 J			
Temperature	TEMP			deg c			21.2 J				21.6 J			
Total Organic Carbon	TOC			mg/kg			14000				26000			
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%			83.9				91.6			
Gravel	GRAVEL			%			0				0			
Sand	308075-07-2			%			16.1				8.4			
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T07C	T07C	T07C	T08A	T08A	T08A	T08A	T08B	T08B	
				Sample ID	T07C-0-12	T07C-6-12	T07C-12-24	T08A-0-6	T08A-0-12	T08A-6-12	T08A-12-24	T08B-0-6	T08B-0-12	
				Sample Date	09 Oct 2023									
				Sample Depth	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg			14	11	11 J		8.5	14	15	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg			0.057 J	0.032 J	0.062 J		0.086	0.06 J	0.06 J	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg			0.7	0.55	0.52 J		0.7	0.19 J	0.38 J	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg			72 J	56 J	63 J		63 J	60 J	57 J	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU	7 J				6.8 J				6.2 J	
Temperature	TEMP			deg c	21.8 J				21.5 J				21.7 J	
Total Organic Carbon	TOC			mg/kg	25000				19000				12000	
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%	88.5				88.2				90.2	
Gravel	GRAVEL			%	1				0				0	
Sand	308075-07-2			%	10.5				11.8				9.8	
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T08B	T08B	T08C	T08C	T08C	T08C	T08D	T08D	T08D	
				Sample ID	T08B-6-12	T08B-12-24	T08C-0-6	T08C-0-12	T08C-6-12	T08C-12-24	T08D-0-6	T08D-DUP-09	T08D-0-12	
				Sample Date	09 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023						
				Sample Depth	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	0-12in	0-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	FD	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual								
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	14		17		16	J	17		16	<u>250 J</u>
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	< 0.072	U	< 0.068	U	0.052	J	0.045	J	0.027	J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.3	J	0.19	J	0.4	J	0.3	J	0.21	J
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	50	J	47	J	60	J	58	J	52	J
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU					6.2	J			6.9	J
Temperature	TEMP			deg c					21.6	J			21.8	J
Total Organic Carbon	TOC			mg/kg					13000				22000	22000
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%					89.3					87.6
Gravel	GRAVEL			%					0					0
Sand	308075-07-2			%					10.7					12.4
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T08D	T08D	T08E	T08E	T08E	T08E	T08F	T08F	T08F	
				Sample ID	T08D-6-12	T08D-12-24	T08E-0-6	T08E-0-12	T08E-6-12	T08E-12-24	T08F-0-6	T08F-DUP-12	T08F-0-12	
				Sample Date	04 Oct 2023	04 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	09 Oct 2023	
				Sample Depth	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in	0-6in	6-12in	0-12in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N	FD	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	40		13		27 J		<u>51</u>	14	16 J	11
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	<u>0.22</u>		0.044 J		<u>0.2 J</u>		<u>0.27</u>	0.094	0.081 J	0.05 J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.52		0.27 J		1 J		1.1	1.6	0.57	0.66
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	86 J		72 J		<u>160 J</u>		94 J	88 J	90 J	56 J
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU					6.5 J					6 J
Temperature	TEMP			deg c					21.6 J					21.5 J
Total Organic Carbon	TOC			mg/kg					43000 J					21000
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%					91.5					89.4
Gravel	GRAVEL			%					0					0.3
Sand	308075-07-2			%					8.5					10.3
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T08F	T08F	T09B	T09B	T09B	T09B	T09B	T09B	T09C	
				Sample ID	T08F-6-12	T08F-12-24	T09B-0-6	T09B-DUP-01	T09B-DUP-03	T09B-0-12	T09B-6-12	T09B-12-24	T09C-0-6	
				Sample Date	09 Oct 2023	09 Oct 2023	07 Dec 2022	07 Dec 2022	07 Dec 2022	07 Dec 2022	07 Dec 2022	07 Dec 2022	04 Oct 2023	
				Sample Depth	6-12in	12-24in	0-6in bgs	0-12in bgs	6-12in bgs	0-12in bgs	6-12in bgs	12-24in bgs	0-6in	
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	FD	FD	N	N	N	N	
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg	13		20		43		<u>52</u>		40	41
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg	0.049 J		0.043 J		<u>0.2 J</u>		0.13 J		0.13	<u>0.3 J</u>
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg	0.69		0.7		0.44		0.19 J		0.16 J	0.19 J
Zinc	7440-66-6	<u>109</u>	2200	mg/kg	71 J		74 J		<u>110 J</u>		<u>160 J</u>		<u>150 J</u>	<u>220 J</u>
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU					7.5 HF		7.5 HF			
pH	PH			SU					7.5 HF		7.5 HF			
Temperature	TEMP			deg c					23.3 HF		23.7 HF			
Total Organic Carbon	TOC			mg/kg					10000		8800			
GEOPHYSICAL														
Clay	CLAY			%							9.4			
Fines	FINES			%										
Gravel	GRAVEL			%							5			
Sand	308075-07-2			%							60			
Silt	E52456985			%							25.6			

Table 4
 Plantasie Creek Floodplain Soil Data
 Plantasie Creek Interim Floodplain Investigation Report
 Dyno Nobel Port Ewen Site
 Port Ewen, NY

				Location ID	T09C	T09C	T09C	T10A	T10A	T10A	T10A	T10A	T10A	T10B
				Sample ID	T09C-0-12	T09C-6-12	T09C-12-24	DUP-08	T10A-0-6	T10A-0-12	T10A-6-12	T10A-12-24	T10A-12-24	T10B-0-6
				Sample Date	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023				
				Sample Depth	0-12in	6-12in	12-24in	0-6in	0-6in	0-12in	6-12in	12-24in	12-24in	0-6in
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	FD	N	N	N	N	N	N
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
METALS														
Copper	7440-50-8	<u>50</u>	270	mg/kg			23 J		<u>63 J</u>		43 J		44 J	
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg			0.06 J		<u>0.19 J</u>		0.1 J		0.12 J	
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg			0.17 J		0.28 J		0.27 J		0.3 J	
Zinc	7440-66-6	<u>109</u>	2200	mg/kg			71 J		<u>360 J</u>		<u>130 J</u>		<u>140 J</u>	
GENERAL CHEMISTRY														
Corrosivity	CORROS			SU										
pH	PH			SU	7.1 J						7.7 J			
Temperature	TEMP			deg c	21.8 J						21.4 J			
Total Organic Carbon	TOC			mg/kg	7400						87000 J			
GEOPHYSICAL														
Clay	CLAY			%										
Fines	FINES			%	37.4						39.1			
Gravel	GRAVEL			%	3.3						17			
Sand	308075-07-2			%	59.3						43.9			
Silt	E52456985			%										

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

				Location ID	T10B	T10B	T10B	T10C	T10C	T10C	T10C		
				Sample ID	T10B-0-12	T10B-6-12	T10B-12-24	T10C-0-6	T10C-0-12	T10C-6-12	T10C-12-24		
				Sample Date	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023	04 Oct 2023		
				Sample Depth	0-12in	6-12in	12-24in	0-6in	0-12in	6-12in	12-24in		
				Sample Type (N: Normal; FD: Field Duplicate)	N	N	N	N	N	N	N		
Chemical	CAS No.	Site-Specific Final Unrestricted Use Soil Cleanup Objective (SCO)	Site-Specific Residential/Restricted-Residential Use Soil Cleanup Objective (SCO)	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual	
METALS													
Copper	7440-50-8	<u>50</u>	270	mg/kg			<u>140 J</u>		<u>1100 J</u>		<u>240 J</u>		32 J
Mercury	7439-97-6	<u>0.18</u>	1.2	mg/kg			<u>0.37 J</u>		<u>1.9 J</u>		<u>0.73 J</u>		0.068 J
Selenium	7782-49-2	<u>3.9</u>	36	mg/kg			0.25 J		0.8		1		0.39
Zinc	7440-66-6	<u>109</u>	2200	mg/kg			91 J		<u>380 J</u>		<u>140 J</u>		63 J
GENERAL CHEMISTRY													
Corrosivity	CORROS			SU									
pH	PH			SU	8 J				7.2 J				
Temperature	TEMP			deg c	21.6 J				21.8 J				
Total Organic Carbon	TOC			mg/kg	14000				30000				
GEOPHYSICAL													
Clay	CLAY			%									
Fines	FINES			%	39.2				45.4				
Gravel	GRAVEL			%	4.5				0				
Sand	308075-07-2			%	56.3				54.6				
Silt	E52456985			%									

Table 4
Plantasie Creek Floodplain Soil Data
Plantasie Creek Interim Floodplain Investigation Report
Dyno Nobel Port Ewen Site
Port Ewen, NY

Notes:

Bolded and underlined values indicate exceedances of the Final Unrestricted Use SCO criteria

Highlighted values indicate exceedances of the Residential/Restricted-Use Residential SCO criteria

Gray values indicate a non-detect result

% = percent

bgs = below ground surface

CAS = Chemical Abstracts Service

deg C = Degrees celsius

HF = Field parameter with a holding time of 15 minutes

in = inches

J = Result is less than the reporting limit but greater than or equal to the method detection limit and concentration is an approximate value

MS/MSD = matrix spike/matrix spike duplicate

mg/kg = milligram per kilogram

SCO = Soil Cleanup Objective

SU = standard unit

U = Analyte not detected above the method detection limit

TABLE 5
Historical Sediment Results
SWMU No. 1 and 22
Hercules Site
Port Ewen, New York

SAMPLE LOCATION	SAMPLE DATE	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Potassium	Selenium	Silver	Zinc
01-01-4.0	6/11/98		9.2	N	10	750 *	3.3	130 *	4400	8300	2.3		1400	5.1	580
01-01-6.0	6/11/98		14	N	9.5	830 *	4.5	160 *	5400	8300	1.2		1200	4.2	750
01-01-8.5	6/11/98		23	N				240 *	6200	* 12000 *			1800	*	
01-01-10.0	6/11/98		27	N				230 *	9200	11000			1600		
01-02-4.0	6/10/98		6.4	N	11	260 *	0.88	71 *	2800	1900	0.52		340	1.1	350
01-02-6.0	6/10/98		3.8	N	9.6	190 *	0.78	71 *	6700	1100	0.32		190	1.2	670
01-02-8.0	6/11/98							35 *	2200	* 1100 *			140	*	
01-02-12.0	6/11/98							35 *	2200	* 1100 *			140	*	
01-02B-4.0	6/11/98		3.2	N	10	260 *	1.2	61 *	1200	1900	1.2		340	1.4	190
01-02B-6.0	6/11/98		5.3	N	11	270 *	0.82	61 *	1700	2300	0.56		370	0.95	190
01-02B-8.0	6/11/98		3.3	N				72 *	3800	* 3400 *			550	*	
01-02B-10.0	6/11/98		2	N				28 *	400	* 470 *			78	*	
01-02B-12.0	6/11/98		1.6	U				21 *	3800	* 3400 *			59	*	
01-03-4.0	6/10/98		57	N	13	740 *	1.4	250 *	14000	5800	0.54		760	1.7	
01-03-6.0	6/10/98		1.6	U	9.9	110 *	0.32	U 28 *	130	130	0.063	U	21	0.32	U 88
01-04-4.0	6/11/98		4.2	N	13	260 *	0.92	72 *	1800	1300	0.17		200	0.78	250
01-04-6.0	6/11/98		1.6	U	11	83 *	0.32	U 25 *	45	28	0.063	U	1.6	0.32	U 86
01-05-1.1	2/17/98		13	N	5.6	4000	1.7	38	1300	N 8100	5.3		990	2.4	300 N N
01-05-2.4	7/26/99		3.2	U		180	1		580	21	N 0.16		1.7	U	
01-05-3.5	5/7/98	39000	28	N	23	1900	1.9	U 83	N* 17	E 8600	7100	150	N 2100	1.9	U 420
01-05-4.6	7/26/99		3.1	U		85	0.3	U	26	20	0.064	U	1.6	U	
01-05-5.0	10/23/98		2.1	U		250	0.42	U	990	N 250	3.4		45		
01-06-1.1	2/17/98		4.8	N	6.3	1300	1.6	36	4200	N 5300	24		1000	1.1	430 N
01-06-3.5	5/7/98	22000	14	N	11	2000	2.6	NE 36	N* 12	E 5600	6800	76	N 1500	1.4	490
01-07-1.0	2/17/98		4	N	13	240	1.6	13	2000	N 1000	160		150	0.29	140 N
01-07-2.4	7/27/99		3	U		170	0.37		17	20	N 0.41		1.6	U	
01-07-3.5	5/7/98	23000	2.4	U	6.8	360	0.59	NE 26	N* 12	E 970	550	26	N 1100	0.48	U 170
01-07-4.6	7/27/99		3.1	U		99	0.3	U	31	EN 27	N 0.86		1.6		
01-08-1.0	2/17/98		0.36	U	3.9	190	0.44	29	33	N 24	0.74		3.5	0.071	U 90 N
01-09-1.0	2/17/98		1.1	N	5.9	200	0.47	23	500	N 250	3.6		46	0.092	130 N
01-09-3.5	5/7/98	18000	1.7	U	4.5	94	0.35	U 21	N* 15	E 28	24	0.58	N 1900	0.35	U 80
01-10-1.0	2/17/98		0.56	N	8.3	77	0.31	21	38	N 40	0.22		4.2	0.068	U 89 N
01-11-1.0	2/17/98		0.35	N	10	64	0.36	23	38	N 41	0.16		2.4	0.071	U 91 N
01-12-1.0	2/17/98		0.32	U	6.3	80	0.44	18	29	N 34	0.41		0.89	0.065	U 110 N
01-13-1.0	2/17/98		0.3	U	13	130	0.6	27	100	N 52	0.12	U	2.3	0.068	93 N
01-14-1.0	5/7/98	13000	20	N	13	U 700	2.1	NE 65	N* 6.1	E 1800	5400	2.5	N 2000	U 2.5	1300
01-15-1.0	5/7/98	18000	14	N	11	U 360	2.1	NE 69	N* 9.7	E 1000	5400	1.6	N 1600	1.6	320
01-16-1.0	5/7/98	17000	8.9	N	8.8	U 300	1.5	NE 76	N* 8.7	E 930	3900	2.1	N 1800	2	300

TABLE 5
Historical Sediment Results
SWMU No. 1 and 22
Hercules Site
Port Ewen, New York

SAMPLE LOCATION	SAMPLE DATE	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Potassium	Selenium	Silver	Zinc
01-17-1.0	5/7/98	11000	4.8 U	6.7 U	120	1	16	N*	7.4 E	420	370	9.1 N	1000	1 U	130
01-18-1.0	5/7/98	6700	1.4 U	9.8	65	0.28	12	N*	6.3 E	36	67	0.12 N	1000	0.28 U	62
01-19-1.0	10/23/98		2.1 U		220	0.42	U			30	N 19	0.39		2.1 U	
01-20-1.0	10/23/98		1.8 U		210	0.36	U			17	N 24	0.093		1.8 U	
01-21-1.0	10/23/98		2 U		79	0.4	U			26	N 29	1.2		2 U	
01-22-1.0	10/23/98		2.6 U		130	0.81				310	N 180	0.57		28	
01-23-1.0	10/23/98		2.2 U		410	0.45	U			34	N 30	10		2.2 U	
22-01-1.0	9/8/97	28000	0.73 N	19 *	370 N*	4.4	29	18	21000	440 *	58	2400 E*	18	0.48 *	4000
22-02-1.0	9/8/97	12000	0.47 U	5.5 *	210 N*	1.4	16	8.3	2400	72 *	89	1200 E*	8.1	0.12 *	630
22-03-1.0	9/8/97	21000	0.31 U	10 *	59 N*	1.6	20	22	5000	28 *	5.2	960 E*	0.63 U	0.063 U	530
22-04-1.0	9/8/97	36000	0.86 U	22 *	250 N*	3.6	46	16	33000	590 *	240	2300 E*	31	0.5 *	960
22-05-1.0	9/8/97	11000	0.33 U	8.1 *	66 N*	0.52	14	7.7	36	46 *	14	560 E*	4.8	0.067 *	69
22-06-1.0	9/8/97	4100	1.1 N	9.7 *	190 N*	27	7.8	2.8	1400	290 *	2.6	490 E*	37	0.6 *	910
22-07-1.0	9/8/97	16000	8.4 N	8.8 *	1500 N*	8.7	75	9.3	4800	2000 *	1.1	780 E*	280	3.2 *	500
22-08-1.0	9/8/97	22000	11 N	29 *	370 N*	38	80	5	100000	4000 *	0.077	U 4600 E*	64	65 *	780
22-09-1.0	9/8/97	11000	0.3 U	9.4	97 N	0.28	21	5.5 E	590	27 E	0.076	940	0.93	E* 0.06	U 41 E
22-10-1.0	9/8/97	23000	N* 0.69	U 8.2	270	1.1	27	N 12	E 550	490 E	1.9	2200 *	61	0.3	170 NE*
22-11-1.0	9/8/97	18000	N* 0.46	U 3.1	200	0.83	21	N 9.6	E 240	81 E	0.52	1400 *	14	0.16	120 NE*
22-12-1.0	9/8/97	15000	N* 0.32	U 5.5	110	0.27	20	N 13	E 38	16 E	0.063	U 1200 *	0.65	0.063 U	62 NE*
22-13-1.0	5/5/98		3.4 N			5.9	280	N	11000	* 3500 *	2.4		490 N*	12	
22-14-1.0	5/5/98		18 N			36	98	N	8000	* 3700 *	4.8		2200 N*	7.4	
22-14 4-6	7/23/99		4.3 U		220	0.59			2600	57	1.2		2.2 U		
22-14 10-12	7/23/99		3.2 U		84	0.55			33	16 N	0.09		1.7 U		
22-15-1.0	5/5/98		14 N			55	37	N	3700	* 3600 *	1.6		530 N*	3.2	
22-16-1.0	5/5/98		35 N			10	31	N	2600	* 4700 *	4.6		740 N*	1.7 U	
22-18-1.0	5/5/98		2 U			6.2	42	N*	1200	* 400 *	0.72		78 N*	0.82	
22-18 2-4	7/20/99		3.1 U		420	0.37			23	16 N	0.063	U	2.2 U		
22-18 4-6	7/15/99		3.1 U		49	0.31	U		18	9.3	0.07	U	1.6 U		
22-19-1.0	5/5/98		1.5 U			0.3	U 22	N	37	* 21 *	0.14		5.6 N*	0.3 U	
22-20-1.0	5/5/98		5.7 U			5.7	17	N*	18000	* 310 *	0.23	U	26 N*	1.1 U	
22-21-1.0	5/5/98		1.6 U			0.31	U 44	N*	41	* 200 *	0.063	U	3.1 U	0.31 U	
22-21 2-4	7/20/99		3.1 U		57	0.31	U		24	10 N	0.058	U	1.6 U		
22-21 4-6	7/15/99		3 U		39	0.3	U		20	11	0.057	U	1.6 U		
22-22-1.0	10/23/98		4.8 U		570	2.5			5400	N 550	22		18		
22-23-1.0	10/23/98		5.7 U		240	1.2			4300	N 290	10		13		
22-24-1.0	10/23/98		5.4 U		500	2			2300	N 440	12		33		
22-25-1.0	10/23/98		3.1 U		380	0.63	U		3460	N 210	12		12		

TABLE 5
Historical Sediment Results
SWMU No. 1 and 22
Hercules Site
Port Ewen, New York

SAMPLE LOCATION	SAMPLE DATE	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Potassium	Selenium	Silver	Zinc
22-26-1.0	10/23/98		3.57	U	220	2.3			6600	N 210	35		16		
22-26 2-4	7/20/99		3.1	U	85	0.31	U		25	12	N 0.067	U	1.6	U	
22-26 4-6	7/15/99		3.1	U	170	0.3	U		23	EN 16	N 0.063	U	1.6	U	
22-27-1.0	10/23/98		5.4	U	320	4.2			16000	N 930	67		85		
22-28-1.0	10/23/98		6	U	480	6.4			4700	N 600	3.3		49		
22-28 2-4	7/22/99		3.1	U	140	0.3	U		18	18	N 0.061	U	1.6	U	
22-28 4-6	7/22/99		3.1	U	62	0.3	U		15	7.3	0.056	U	1.6	U	
22-29-1.0	10/23/98		8.9	U	680	12			3900	N 620	5.3		120		
22-30-1.0	10/23/98		2.1	U	190	0.73			7200	N 98	1.9		5		
22-30 2-4	7/23/99		3.1	U	290	0.41			11	13	N 0.058	U	1.6	U	
22-30 4-6	7/23/99		3.6	U	210	0.4	U		15	EN 17	N 0.07	U	1.9	U	
22-31-1.0	4/29/99		4.7	U	320	7.2			7000	400	48		43		
22-32-1.0	4/29/99		4.1	U	230	0.41	U		1000	23	0.31		2	U	
22-32 2-4	7/23/99		3.1	U	230	0.5			11	15	N 0.063	U	1.6	U	
22-33-1.0	4/29/99		3.6	U	170	0.54			520	23	16		1.7	U	
22-34-1.0	4/29/99		3.8	U	230	0.38	U		170	47	0.96		1.8	U	
22-35-1.0	4/29/99		3.3	U	190	0.33	U		25	16	0.81		1.6	U	

TABLE 6
SUMMARY OF ANALYTICAL RESULTS FOR TARGET METALS - SQT SEDIMENT STATIONS
FWIA STEP IIC INVESTIGATION
HERCULES SITE
PORT EWEN, NEW YORK

Analyte	Units	Number of Samples	Number of Detections	Minimum Detected Concentration	Maximum Detected Concentration	NYSDEC Sediment Criteria		SWMU 1/22 SQT Stations								Reference SQT Stations		
						LEL ¹	SEL ²	PE-SQT-01	PE-SQT-02	PE-SQT-03	PE-SQT-04	PE-SQT-05	PE-SQT-06	PE-SQT-07	PE-SQT-08	PE-SQT-09	PE-SQT-10	PE-SQT-11
Metals																		
Cadmium	mg/kg	11	11	0.22	26.6	0.6	9.0	0.84	0.83	0.22	3.1	2	26.6	8.4	3.3	2.3	2	1.1
Copper	mg/kg	11	11	37.2	18,800	16	110	702 ^J	524 ^J	12600 ^J	8070 ^J	1790 ^J	18800 ^J	4390 ^J	2300 ^J	68 ^J	68.4 ^J	37.2 ^J
Lead	mg/kg	11	11	36.2	2,060	31	110	251	592	1850 ^J	353	2060	474	224	128	58.1	56.7	36.2
Mercury	mg/kg	11	11	0.19	82.4	0.15	1.3	57.4	8.3	61.1	27.8	3.5	82.4	12.2	24.8	0.29	0.32	0.19
Selenium	mg/kg	11	11	5.20	198	5.00	--	35.6	71	198	38.6	170	78.2	33.2	16.4	8.4	11	5.2
Zinc	mg/kg	11	11	26.2	2,110	120	270	174	150	26.2	1270	246	2110	623	404	85.9	81.3	68.3
Other Sediment Parameters																		
Percent Solids	%	11	11	18.3	41.9	NA	NA	24.0	21.2	41.9	25.7	18.3	19.9	19.0	23.6	21.0	23.5	39.3
Total organic carbon	%	11	11	4.32	28.1	NA	NA	6.64	4.32	5.57	5.42	6.52	10.6	8.35	4.93	21.4	28.1	11.8

Notes:

^J Result is estimated due to a minor quality control anomaly

^U Result is a non-detect < the detection limit (DL)

^B Estimated result; less than the RL

^J Method blank contamination

^E Matrix interference

1, LEL, lowest effect level; sediment screening criterion for selenium is based on a value from Nagpal et al. (1995) for British Columbia

2, SEL, severe effects level

Bold results indicate a sediment concentration exceeding the LEL; shaded results indicate a concentration exceeding the SEL

TABLE 7
SUMMARY OF ANALYTICAL RESULTS FOR TARGET METALS - DOWNSTREAM SEDIMENT STATIONS
FWIA STEP IIC INVESTIGATION
HERCULES SITE
PORT EWEN, NEW YORK

Analyte	UnitS	Number of Samples	Number of Detections	Minimum Detected Concentration	Maximum Detected Concentration	NYSDEC Sediment Criteria		PE-DNS-SD-01 (0-1.0)	PE-DNS-SD-01 (1-1.5)	PE-DNS-SD-02 (0-1.0)	PE-DNS-SD-03 (0-1.0)	PE-DNS-SD-04 (0-1.0)
						LEL ¹	SEL ²					
Metals												
Cadmium	mg/kg	5	5	0.45	1.9	0.6	9.0	1.9	1	1.7 ^E	0.45	0.78
Copper	mg/kg	5	5	179	2,440	16	110	2020	2440	1410	246	179
Lead	mg/kg	5	5	25.9	77.3	31	110	77.3	51.4	52.3	25.9	40.6
Mercury	mg/kg	5	5	1.1	45.3	0.15	1.3	25.5	45.3	25.4	3.4	1.1
Selenium	mg/kg	5	5	1.3	7.7	5.00	--	7.7	4.3	5.1 ^E	1.3	2
Zinc	mg/kg	5	5	89.3	270	120	270	270	249	226	89.3	185
Other Sediment Parameters												
Percent Solids	%	5	5	17.2	61	NA	NA	17.2	40.6	32.4	61	44.2
Total Organic Carbon	%	5	5	2	8	NA	NA	7.14	4.25	7.75	2.08	4.82

Notes:

If the result is > the reporting limit (RL), then [x] is non-detect at the sample concentration; if the result is < the RL, then [x] is non-detect at the RL.

^U Result is a non-detect < the detection limit (DL)

^E Matrix interference

1, LEL, lowest effect level; sediment screening criterion for selenium is based on a value from Nagpal et al. (1995) for British Columbia

2, SEL, severe effects level

Bold results indicate a sediment concentration exceeding the LEL; shaded results indicate a concentration exceeding the SEL

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		Site	Port Ewen	Port Ewen	Port Ewen										
		Location ID	P1SCD-01-A	P1SCD-01-B	P1SCD-02-A	P1SCD-02-B	P1SCD-03-A	P1SCD-03-B							
		Lab IDs	200-35700-1	200-35700-2	200-35700-4	200-35700-5	200-35700-6	200-35700-8							
		Sample Name	P1SCD-01-A-0007IN	P1SCD-01-B-0006IN	P1SCD-02-A-0004IN	P1SCD-02-B-0004IN	P1SCD-03-A-0006IN	P1SCD-03-B-0006IN							
		Sample Depth	0-0.583333 FT	0-0.5 FT	0-0.333333 FT	0-0.333333 FT	0-0.5 FT	0-0.5 FT							
		Sample Date	10/12/2016	10/12/2016	10/12/2016	10/12/2016	10/12/2016	10/12/2016							
Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	
		Class A	Class B	Class C											
METALS															
Copper	mg/kg	< 32	32 - 150	>150	2,490		2,350		373		1,700		805		928
Mercury	mg/kg	<0.2	36- 130	>130	9.5		17.9		2.2		6.1		7		8.7
Selenium	mg/kg	< 5 ^a	-	-	5.1		6		2.1		2.7		3.4		3.7
Zinc	mg/kg	<120	120 - 460	>460	326		283		105		193		175		188
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS															
Total Carbon	%	-	-	-	6		3.6		1.53		3.28		4.21		5
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	70.4		65.1		89		56.4		47.1		64.4
Solids, Percent	%	-	-	-	50.3		38.5		50.2		48.1		37.1		38.2

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		Site	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen					
		Location ID	P2SCD-04-A	P2SCD-04-B	P1SCD-05-A	P1SCD-05-B	P1SCD-06-A	P1SCD-06-B							
		Lab IDs	200-38498-1	200-38498-2	200-35736-11	200-35736-12	200-35680-1	200-35680-2							
		Sample Name	0006IN	0002IN	P1SCD-05-A-0006IN	P1SCD-05-B-0006IN	P1SCD-06-A-0006IN	P1SCD-06-B-0008IN							
		Sample Depth	0-0.5 FT	0-0.166667 FT	0-0.5 FT	0-0.5 FT	0-0.5 FT	0-0.666667 FT							
		Sample Date	5/4/2017	5/4/2017	10/11/2016	10/11/2016	10/10/2016	10/10/2016							
Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	
		Class A	Class B	Class C											
METALS															
Copper	mg/kg	< 32	32 - 150	>150	707 B		533 B		540		481		347		448
Mercury	mg/kg	<0.2	36- 130	>130	6.4		4.3		6.4		3.7		1.6		2.6
Selenium	mg/kg	< 5 ^a	-	-	2		1.8		3.4		3.4		4.1		3.5
Zinc	mg/kg	<120	120 - 460	>460	212		131		200 F1		192		175		207
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS															
Total Carbon	%	-	-	-	6.28		6.22		4.66		4.44		4.27		4.34
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	72.1		-		31		47.7		28.2		38.7
Solids, Percent	%	-	-	-	35.7		27.1		36.2		36.1		47.8		42.5

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		NYSDEC Freshwater Sediment Guidance Values			Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen	
Analyte	Units	Class A	Class B	Class C	Result	Qualifier								
		METALS												
Copper	mg/kg	< 32	32 - 150	>150	502		397		781		600		589	
Mercury	mg/kg	<0.2	36- 130	>130	2.5		2.7		4.3		3.4		4.5 F1	
Selenium	mg/kg	< 5 ^a	-	-	3.1		3.6		5.2		4.4		4.1	
Zinc	mg/kg	<120	120 - 460	>460	220		200		294		226		242	
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS														
Total Carbon	%	-	-	-	4.32		3.03		5.38		4.58		4.69	
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	44.7		62.1		46.4		53.8		60.3	
Solids, Percent	%	-	-	-	44.8		48.2		38.8		41		37.1	

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		NYSDEC Freshwater Sediment Guidance Values			Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen		
Analyte		Units	Class A	Class B	Class C	Result	Qualifier								
METALS															
Copper	mg/kg	< 32	32 - 150	>150	156		619		515		230		2,170		293
Mercury	mg/kg	<0.2	36- 130	>130	1.5		4.4		3.8		1.2		4.1		1.8
Selenium	mg/kg	< 5 ^a	-	-	1.1		4.9		3.7		2		3.7		2.5 B
Zinc	mg/kg	<120	120 - 460	>460	82.8		310		298		154		311		170
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS															
Total Carbon	%	-	-	-	5.87		6.9		6.88		2.2		2.95		3.43
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	66.8		56.8		56.6		44		61.1		46.3
Solids, Percent	%	-	-	-	80.7		26.5		27.8		51.3		43.9		40.8

Table 8A
Plantasia Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		NYSDEC Freshwater Sediment Guidance Values			Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen		
Analyte		Units	Class A	Class B	Class C	Result	Qualifier								
METALS															
Copper	mg/kg	< 32	32 - 150	>150	236		34.2		547		567		914		633
Mercury	mg/kg	<0.2	36- 130	>130	1.9 F1		0.053 U		3.3		3		3.8		2.3
Selenium	mg/kg	< 5 ^a	-	-	2.6 B		0.92 B		4.6 B		4.5 B		3.9 B		2.9 B
Zinc	mg/kg	<120	120 - 460	>460	171		79.8		240		246		303		243
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS															
Total Carbon	%	-	-	-	3.47		0.145		7.73		6.1		3.08		3.37
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	67		89.2		57.2		60.5		52.3		52
Solids, Percent	%	-	-	-	45.5		71.1		32.2		31.5		40.9		46.4

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		Site	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen	Port Ewen					
		Location ID	SCD-15-A	SCD-15-B	SCD-16-A	SCD-16-B	SCD-17-A	SCD-17-B							
		Lab IDs	200-36502-14	200-36502-15	200-36502-12	200-36502-13	200-36502-10	200-36502-11							
		Sample Name	0006IN	0004IN	0006IN	0004IN	0005IN	0008IN							
		Sample Depth	0-0.5 ft	0-0.333333 ft	0-0.5 ft	0-0.333333 ft	0-0.416667 ft	0-0.666667 ft							
		Sample Date	12/5/2016	12/5/2016	12/5/2016	12/5/2016	12/5/2016	12/5/2016							
Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	
		Class A	Class B	Class C											
METALS															
Copper	mg/kg	< 32	32 - 150	>150	587		713		623		401		215		244
Mercury	mg/kg	<0.2	36- 130	>130	3.1		4.2 F1F2		2.5		1.9		2		1.1
Selenium	mg/kg	< 5 ^a	-	-	2.3		1.6 F1		0.59		1.4		1.4		1.7
Zinc	mg/kg	<120	120 - 460	>460	220		173		114		168		103		138
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS															
Total Carbon	%	-	-	-	6.53		4.57		1.4		3.97		2.28		3.66
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	64.3		71.8		46.3		47.1		39.2		37.6
Solids, Percent	%	-	-	-	33.6		44.1		67.8		43.7		54		39.5

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		NYSDEC Freshwater Sediment Guidance Values			Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen	
Analyte	Units	Class A	Class B	Class C	Result	Qualifier								
		METALS												
Copper	mg/kg	< 32	32 - 150	>150	233		280		105 B		371 B		47.8 B	
Mercury	mg/kg	<0.2	36- 130	>130	0.59		1		0.37		1.1		0.14	
Selenium	mg/kg	< 5 ^a	-	-	1.2		1.4		0.48 J		0.58		0.15 J	
Zinc	mg/kg	<120	120 - 460	>460	198		198		126		158		40.2	
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS														
Total Carbon	%	-	-	-	2.6		3.1		1.87		1.68		0.96	
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	21.7		33.2		15.2		36.7		28.8	
Solids, Percent	%	-	-	-	50.9		48		46.8		54		67.2	

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		Site			Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen			
		Location ID			P2SCD-18.9-A		P2SCD-18.9-A		P2SCD-18.9-B		P2SCD-18.9-B		SCD-19-A		SCD-19-B	
		Lab IDs			200-38498-7		200-38498-11		200-38498-8		200-38498-9		200-36502-6		200-36502-5	
		Sample Name			0012IN		1218IN		0006IN		0006IN-D		0009IN		0008IN	
		Sample Depth			0-1 ft		1-1.5 ft		0-0.5 ft		0-0.5 ft		0-0.75 ft		0-0.666667 ft	
		Sample Date			5/4/2017		5/4/2017		5/4/2017		5/4/2017		12/5/2016		12/5/2016	
Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
		Class A	Class B	Class C												
METALS																
Copper	mg/kg	< 32	32 - 150	>150	34.4 B		18.9 B		141 B		158 B		66		62.6	
Mercury	mg/kg	<0.2	36- 130	>130	0.61 F1		0.17		0.42		0.64		0.24		0.13	
Selenium	mg/kg	< 5 ^a	-	-	0.21 JF1		0.19 J		0.37 J		0.43 J		0.42 J		0.57	
Zinc	mg/kg	<120	120 - 460	>460	51.9 F1		35.1		86.1		105		66.1		73.3	
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS																
Total Carbon	%	-	-	-	0.989		2.2		1.6		1.62		1.31		0.829	
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	50.3		42.5		18.4		28		17.7		23.9	
Solids, Percent	%	-	-	-	73.5		69.3		57.1		53.3		69.6		74.1	

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		Site	Port Ewen	Port Ewen	Port Ewen					
		Location ID	SCD-20-A	SCD-20-B	SCD-20-B					
		Lab IDs	200-36502-3	200-36502-1	200-36502-2					
		Sample Name	0005IN	0006IN	0006IN-D					
		Sample Depth	0-0.416667 ft	0-0.5 ft	0-0.5 ft					
		Sample Date	12/5/2016	12/5/2016	12/5/2016					
Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Result	Qualifier	Result	Qualifier	Result	Qualifier
		Class A	Class B	Class C						
METALS										
Copper	mg/kg	< 32	32 - 150	>150	176		53.8		25.7	
Mercury	mg/kg	<0.2	36- 130	>130	0.45		0.12		0.084	
Selenium	mg/kg	< 5 ^a	-	-	0.94		0.31 J		0.32 J	
Zinc	mg/kg	<120	120 - 460	>460	128		52.4		48.8	
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS										
Total Carbon	%	-	-	-	2.76		1.16		1.06	
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	38.8		34.9		33.4	
Solids, Percent	%	-	-	-	51.1		71.5		70.8	

Table 8A
Plantasie Creek Sediment Sampling Results - Downstream Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

Notes:

^a = NYSDEC SGVs are not available for selenium; the sediment benchmark of 5 mg/kg proposed by Nagpal et al. (1995) is presented for comparison with selenium concentrations measured in sediments.

Grey text = concentration level below limit of detection.

- = Not available or applicable

% = percent

NYSDEC sediment classes are defined based on NYSDEC (2014):

Class A = Metals concentrations below the Class A SGV threshold; concentrations associated with this class are considered to present little or no potential for risk to aquatic life.

Class B = Metals concentrations between the Class A and Class C SGV thresholds; additional information is needed to evaluate the potential risk to aquatic life posed by sediments in this concentration range.

Class C = Metals concentrations exceeding the Class C SGV thresholds; concentrations exceeding Class C thresholds have a higher potential to be toxic to aquatic life.

ft = feet

mg/kg = milligrams per kilogram

NYSDEC = New York State Department of Environmental Conservation

SGV = sediment guidance value

Analytical data qualifiers:

B = Analyte was present in the field sample and associated blank sample.

F1 = Field duplicate results were outside the control limit.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The result concentration is below limit of detection.

Nagpal, N.K., Pommen, L.W., and L.G. Swain. 1995. Approved and working criteria for water quality guidelines for British Columbia. ISBN 0-7726-3774-1. Water Quality Branch. Ministry of Environment. Lands and Parks. Victoria, British Columbia. 28 pp.

Table 8B
Plantasie Creek Sediment Sampling Results - Downstream Samples from the Native Clay Layer
Downstream Sediment Investigation D
Hercules Site
Port Ewen, New York

Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen		Port Ewen		
		Class A	Class B	Class C	Result	Qualifier											
METALS																	
Copper	mg/kg	< 32	32 - 150	>150	5,590		15.5		13.7		55.3		16		14.7		130
Mercury	mg/kg	<0.2	36- 130	>130	6.1		0.047 J		0.064		0.039 J		0.038 J		0.024 J		0.13
Selenium	mg/kg	< 5 ^a	-	-	1.2		1.7		0.74		2.5		1.1 B		0.39 J		1.1
Zinc	mg/kg	<120	120 - 460	>460	227		91.8		66.3		147		87.5		44.8		103
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS																	
Total Carbon	%	-	-	-	1.59		0.407		0.135		0.129		0.458		2.55		0.855
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	95.4		96.4		86.8		97.3		96.4		26.7		44.6
Solids, Percent	%	-	-	-	68.4		75.2		82.2		38.1		80.7		70.7		83.7

Table 8B
Plantasie Creek Sediment Sampling Results - Downstream Samples from the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

Notes:

^a = NYSDEC SGVs are not available for selenium; the sediment benchmark of 5 mg/Kg proposed by Nagpal et al. (1995) is presented for comparison with selenium concentrations measured in sediments.

- = Not available or applicable

% = percent

NYSDEC sediment classes are defined based on NYSDEC (2014):

Class A = Metals concentrations below the Class A SGV threshold; concentrations associated with this class are considered to present little or no potential for risk to aquatic life.

Class B = Metals concentrations between the Class A and Class C SGV thresholds; additional information is needed to evaluate the potential risk to aquatic life posed by sediments in this concentration range.

Class C = Metals concentrations exceeding the Class C SGV thresholds; concentrations exceeding Class C thresholds have a higher potential to be toxic to aquatic life.

ft = feet

mg/kg = milligrams per kilogram

NYSDEC = New York State Department of Environmental Conservation

SGV = sediment guidance value

Analytical data qualifiers:

B = Analyte was present in the field sample and associated blank sample.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

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Table 8C
Plantasie Creek Sediment Sampling Results - Background Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

Analyte	Units	NYSDEC Freshwater Sediment Guidance Values			Result	Qualifier									
		Class A	Class B	Class C											
METALS															
Copper	mg/kg	< 32	32 - 150	>150	18.5		14.9		20.5		16.2		19		23.2
Mercury	mg/kg	<0.2	36- 130	>130	0.059 J		0.042 J		0.055 J		0.074 J		0.064 J		0.059 J
Selenium	mg/kg	< 5 ^a	-	-	1.4		0.93		1.3		1.3		1.3		1.7 B
Zinc	mg/kg	<120	120 - 460	>460	100		76.5		107		80.5		97		110
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS															
Total Carbon	%	-	-	-	2.84		3.52		3.37		4.87		3.06		3.85
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	67.8		68		62.3		48.4		76.1		72.7
Solids, Percent	%	-	-	-	53		52.1		47.8		44.7		45.3		40

Table 8C
Plantasie Creek Sediment Sampling Results - Background Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

		NYSDEC Freshwater Sediment Guidance Values			Port Ewen		Port Ewen		Port Ewen		Port Ewen	
Analyte	Units	Class A	Class B	Class C	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
METALS												
Copper	mg/kg	< 32	32 - 150	>150	18.5		15.8		20.4		17.5	
Mercury	mg/kg	<0.2	36- 130	>130	0.036 J		0.047 J		0.069 J		0.056 J	
Selenium	mg/kg	< 5 ^a	-	-	1.1		1.1		1.4		1.2	
Zinc	mg/kg	<120	120 - 460	>460	92.9		88.7		127		105	
GENERAL CHEMISTRY AND PHYSICAL CHARACTERISTICS												
Total Carbon	%	-	-	-	5.57		3.65		5.65		6.29	
Fine-Grained Sediment (Sieve No. 230)	% Passing	-	-	-	61.4		42.1		59.8		62.1	
Solids, Percent	%	-	-	-	46.5		53.7		43.4		46.2	

Table 8C
Plantasie Creek Sediment Sampling Results - Background Samples from Sediments Overlying the Native Clay Layer
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

Notes:

^a = NYSDEC SGVs are not available for selenium; the sediment benchmark of 5 mg/kg proposed by Nagpal et al. (1995) is presented for comparison with selenium concentrations measured in sediments.

- = Not available or applicable

% = percent

NYSDEC sediment classes are defined based on NYSDEC (2014):

Class A = Metals concentrations below the Class A SGV threshold; concentrations associated with this class are considered to present little or no potential for risk to aquatic life.

Class B = Metals concentrations between the Class A and Class C SGV thresholds; additional information is needed to evaluate the potential risk to aquatic life posed by sediments in this concentration range.

Class C = Metals concentrations exceeding the Class C SGV thresholds; concentrations exceeding Class C thresholds have a higher potential to be toxic to aquatic life.

ft = feet

mg/kg = milligrams per kilogram

NYSDEC = New York State Department of Environmental Conservation

SGV = sediment guidance value

Analytical data qualifiers:

B = Analyte was present in the field sample and associated blank sample.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

Nagpal, N.K., Pommen, L.W., and L.G. Swain. 1995. Approved and working criteria for water quality guidelines for British Columbia. ISBN 0-7726-3774-1. Water Quality Branch. Ministry of Environment. Lands and Parks. Victoria, British Columbia. 28 pp.

Table 8D
Sediment Delineation Sampling Results for Target Metals in Plantasia Creek Downstream of Mill Brook Drive
Downstream Sediment Investigation
Hercules Site
Port Ewen, New York

Sample	Copper	Mercury	Selenium	Zinc
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
	Class A: <32	Class A: <0.2	Class A: <5	Class A: <120
	Class B: 32-150	Class B: 0.2-1	Class B/C: >5	Class B: 120-460
	Class C: >150	Class C: >1		Class C: >460
BTV: 23.8	BTV: 0.09	BTV: 1.6	BTV: 138.9	
SCD-18.7-A	105	0.37	0.94	128
SCD-18.7-B	371	1.1	0.42	66.1
SCD-18.8-A	47.8	0.14	0.21	51.9
SCD-18.8-B	138	0.46	0.15	40.2
SCD-18.9-A	34.4	0.61	0.48	126
SCD-18.9-B	141	0.42	0.58	158
SCD-19-A	66	0.24	0.37	93.1
SCD-19-B	62.6	0.13	0.37	86.1
SCD-20-A	176	0.45	0.57	73.3
SCD-20-B	53.8	0.12	0.31	52.4
SWAC	132.8	0.4	0.5	94
UCL _{mean}	177.6	0.58	0.57	110

Notes:

For copper, mercury, and zinc, italicized font indicates exceedance of Class A SGV; **bold** font indicates exceedance of Class C SGV. For selenium, italicized/**bold** text indicates exceedance of Nagpal et al. (1995) criterion.

BTV = Background threshold value

NYSDEC sediment classes are defined based on NYSDEC (2014):

Class A = Metals concentrations below the Class A SGV threshold; concentrations associated with this class are considered to present little or no potential for risk to aquatic life.

Class B = Metals concentrations between the Class A and Class C SGV thresholds; additional information is needed to evaluate the potential risk to aquatic life posed by sediments in this concentration range.

Class C = Metals concentrations exceeding the Class C SGV thresholds; concentrations exceeding Class C thresholds have a higher potential to be toxic to aquatic life.

mg/kg = milligrams per kilogram

NYSDEC = New York State Department of Environmental Conservation

SGV = sediment guidance value

SWAC = Surface-weighted average concentration

UCL_{mean} = Upper confidence limit of the mean concentration

Nagpal, N.K., Pommen, L.W., and L.G. Swain. 1995. Approved and working criteria for water quality guidelines for British Columbia. ISBN 0-7726-3774-1. Water Quality Branch. Ministry of Environment, Lands and Parks. Victoria, British Columbia. 28 pp.

Table 9
November 2023 Sediment Data
Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

						Sample ID	PBA-01-SD-0-8	DUP-SD	PBA-02-SD-0-10	PBA-03-SD-0-12	
						Sample Date	11/03/2023	11/03/2023	11/02/2023	11/02/2023	
						Sample Depth	0-8in	0-8in	0-10in	0-12in	
						Sample Type (N: Normal; FD: Field Duplicate)	N	FD	N	N	
	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Result	Qual	Result	Qual	Result	Qual
AVS/SEM											
9034 AVS/SEM	Acid Volatile Sulfides	18496-25-8-AVS	--	--	µmol/g	8.6	3.3	0.29 U		0.23 U	
CALC	(SEM-AVS)/f _{OC} (µmol/g _{OC})	SEM-AVS-OC	--	--	µmol/g	-164.5360606		143.8525641		2.591772727	
Lloyd Kahn	Total Organic Carbon	TOC	--	--	mg/kg	33000	20000	39000 F1		22000	
6010D AVS/SEM	Copper	7440-50-8	--	--	µmol/g	2.4 B	1 B	3.8 B		0.087 B	
6010D AVS/SEM	Zinc	7440-66-6	--	--	µmol/g	0.77	0.52	2.1 F2		0.2	
7470A AVS/SEM	Mercury	7439-97-6	--	--	µmol/g	0.00031 B	0.000047 B	0.00025 BF1F2		0.000019 JB	
SEM	SEM/AVS Ratio	SEM/AVS	--	--	None	0.37	0.46	0		0	
GEOPHYSICAL											
D422	Coarse Sand	COARSE SAND	--	--	%	4.5		0.7		1.5	
D422	Fine Sand	FINESAND	--	--	%	12.4		7		17.3	
D422	Fines	FINES	--	--	%	77.5		88		67	
D422	Gravel	GRAVEL	--	--	%	1.1		0		0.9	
D422	Medium Sand	GSMSAND	--	--	%	4.5		4.3		13.3	
D422	Percent Passing 0.375 Inch (3/8 Inch Sieve)	SIEVE0.375IN	--	--	% Passing	100		100		100	
D422	Percent Passing 0.75 Inch (3/4 Inch Sieve)	SIEVE0.75IN	--	--	% Passing	100		100		100	
D422	Percent Passing 1 Inch (1 Inch Sieve)	SIEVE1.0IN	--	--	% Passing	100		100		100	
D422	Percent Passing 1.5 Inch (1.5 Inch Sieve)	SIEVE1.5IN	--	--	% Passing	100		100		100	
D422	Percent Passing 2 Inch (2 Inch Sieve)	SIEVE2.0IN	--	--	% Passing	100		100		100	
D422	Sand	308075-07-2	--	--	%	21.4		12		32.1	
D422	Sieve No. 10, Percent Passing	SIEVE10	--	--	% Passing	94.4		99.3		97.6	
D422	Sieve No. 200, Percent Passing	SIEVE200	--	--	% Passing	77.5		88		67	
D422	Sieve No. 4, Percent Passing	SIEVE4	--	--	% Passing	98.9		100		99.1	
D422	Sieve No. 40, Percent Passing	SIEVE40	--	--	% Passing	89.9		95		84.3	
D422	Sieve No. 80, Percent Passing	SIEVE80	--	--	% Passing	83.8		91.4		70.9	
D422	Sieve, No. 100, Percent Passing	SIEVE100	--	--	% Passing	81.9		90.3		69.8	
D422	Sieve, No. 20, Percent Passing	SIEVE20	--	--	% Passing	93.2		98.4		94	
D422	Sieve, No. 60, Percent Passing	SIEVE60	--	--	% Passing	86.3		92.6		73.9	
D422	Sieve-US Std. 3-inch (75 mm)	SIEVE3INCH	--	--	% Passing	100		100		100	
METALS											
1630	Methylmercury	22967-92-6	--	--	mg/kg	0.0025	0.0055	0.0067		0.00039	
6020B	Aluminum	7429-90-5	--	--	mg/kg						
6020B	Antimony	7440-36-0	--	--	mg/kg						
6020B	Arsenic	7440-38-2	--	--	mg/kg						
6020B	Barium	7440-39-3	--	--	mg/kg						
6020B	Beryllium	7440-41-7	--	--	mg/kg						
6020B	Cadmium	7440-43-9	--	--	mg/kg						
6020B	Calcium	7440-70-2	--	--	mg/kg						
6020B	Chromium, total	7440-47-3	--	--	mg/kg						
6020B	Cobalt	7440-48-4	--	--	mg/kg						
6020B	Copper	7440-50-8	32	150	mg/kg	240	390	1000 F2		32	
6020B	Iron	7439-89-6	--	--	mg/kg						

Table 9
November 2023 Sediment Data
Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

Sample ID	Sample Date	Sample Depth	Sample Type (N: Normal; FD: Field Duplicate)		Unit	PBA-01-SD-0-8 11/03/2023 0-8in N		DUP-SD 11/03/2023 0-8in FD		PBA-02-SD-0-10 11/02/2023 0-10in N		PBA-03-SD-0-12 11/02/2023 0-12in N		
			Result	Qual		Result	Qual	Result	Qual	Result	Qual			
Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual		
6020B	Lead	7439-92-1	--	mg/kg										
6020B	Magnesium	7439-95-4	--	mg/kg										
6020B	Manganese	7439-96-5	--	mg/kg										
6020B	Nickel	7440-02-0	--	mg/kg										
6020B	Potassium	7440-09-7	--	mg/kg										
6020B	Selenium	7782-49-2	5	5	mg/kg	2.6		2.1		8.6		1.1		
6020B	Silver	7440-22-4	--	mg/kg										
6020B	Sodium	7440-23-5	--	mg/kg										
6020B	Thallium	7440-28-0	--	mg/kg										
6020B	Vanadium	7440-62-2	--	mg/kg										
6020B	Zinc	7440-66-6	120	460	mg/kg	210		130		340 F1		84		
7471B	Mercury	7439-97-6	0.2	1	mg/kg	1.4		3.1		6.2		0.088		
SEQUENTIAL EXTRACTION														
6010B SEP Step 1	Copper	7440-50-8	--	mg/kg	0.76	U				0.62	U		0.46	U
6010B SEP Step 1	Selenium	7782-49-2	--	mg/kg	1.6	U				1.3	U		0.98	U
6010B SEP Step 1	Zinc	7440-66-6	--	mg/kg	3	J				4.5	J		1.4	U
6010B SEP Step 2	Copper	7440-50-8	--	mg/kg	1.1	J				5.2	J		0.69	U
6010B SEP Step 2	Selenium	7782-49-2	--	mg/kg	1.2	U				0.99	U		0.73	U
6010B SEP Step 2	Zinc	7440-66-6	--	mg/kg	21					24			0.86	U
6010B SEP Step 3	Copper	7440-50-8	--	mg/kg	70					100			5.3	
6010B SEP Step 3	Selenium	7782-49-2	--	mg/kg	0.4	U				0.41	J		0.24	U
6010B SEP Step 3	Zinc	7440-66-6	--	mg/kg	23	B				30	B		1.4	B
6010B SEP Step 4	Copper	7440-50-8	--	mg/kg	320					270			4	
6010B SEP Step 4	Selenium	7782-49-2	--	mg/kg	1.1	U				0.94	J		0.68	U
6010B SEP Step 4	Zinc	7440-66-6	--	mg/kg	91					150			33	
6010B SEP Step 5	Copper	7440-50-8	--	mg/kg	160					21	J		370	
6010B SEP Step 5	Selenium	7782-49-2	--	mg/kg	6.2	U				5.5	J		5.5	J
6010B SEP Step 5	Zinc	7440-66-6	--	mg/kg	11	J				12	J		17	J
6010B SEP Step 6	Copper	7440-50-8	--	mg/kg	67					150			4	
6010B SEP Step 6	Selenium	7782-49-2	--	mg/kg	0.4	U				0.33	U		0.24	U
6010B SEP Step 6	Zinc	7440-66-6	--	mg/kg	24					30			24	
6010B SEP Step 7	Copper	7440-50-8	--	mg/kg	13					23			2.9	
6010B SEP Step 7	Selenium	7782-49-2	--	mg/kg	0.4	U				0.66	U		0.49	U
6010B SEP Step 7	Zinc	7440-66-6	--	mg/kg	35					38			29	
6010B SEP Sum 1-7	Copper	7440-50-8	--	mg/kg	630					570			390	
6010B SEP Sum 1-7	Selenium	7782-49-2	--	mg/kg	0.17	U				6.8			5.5	
6010B SEP Sum 1-7	Zinc	7440-66-6	--	mg/kg	210					290			100	
6010B SEP Total	Copper	7440-50-8	--	mg/kg	530					910			18	
6010B SEP Total	Selenium	7782-49-2	--	mg/kg	3.6					8.6			1.1	J
6010B SEP Total	Zinc	7440-66-6	--	mg/kg	160					240			91	
7470A SEP Step 1	Mercury	7439-97-6	--	mg/kg	0.014	U*-				0.011	U*-		0.0085	U*-
7470A SEP Step 2	Mercury	7439-97-6	--	mg/kg	0.014	U*-				0.011	U*-		0.0082	U*-

Table 9
November 2023 Sediment Data
Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

Sample ID	Sample Date	Sample Depth	Sample Type (N: Normal; FD: Field Duplicate)	PBA-01-SD-0-8		DUP-SD		PBA-02-SD-0-10		PBA-03-SD-0-12		
				11/03/2023	0-8in	11/03/2023	0-8in	11/02/2023	0-10in	11/02/2023	0-12in	
				N	FD	N	N	N	N	N		
Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual
7470A SEP Step 3	Mercury	7439-97-6	--	--	mg/kg	0.0095	U		0.0085	J	0.0058	U
7470A SEP Step 4	Mercury	7439-97-6	--	--	mg/kg	3.8			1.9		0.012	J
7470A SEP Step 5	Mercury	7439-97-6	--	--	mg/kg	2.8			0.77		3.3	
7470A SEP Step 6	Mercury	7439-97-6	--	--	mg/kg	0.036			0.034		0.0068	U
7470A SEP Step 7	Mercury	7439-97-6	--	--	mg/kg	0.095	U		0.077	U	0.058	U
7470A SEP Sum 1-7	Mercury	7439-97-6	--	--	mg/kg	6.7			2.7		3.3	
7470A SEP Total	Mercury	7439-97-6	--	--	mg/kg	5.8			6.2		0.058	U
PESTICIDES												
8081B	Aldrin	309-00-2	--	--	mg/kg							
8081B	alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	--	--	mg/kg							
8081B	Alpha Endosulfan	959-98-8	--	--	mg/kg							
8081B	beta BHC (Beta Hexachlorocyclohexane)	319-85-7	--	--	mg/kg							
8081B	Beta Endosulfan	33213-65-9	--	--	mg/kg							
8081B	cis-Chlordane	5103-71-9	--	--	mg/kg							
8081B	delta BHC (Delta Hexachlorocyclohexane)	319-86-8	--	--	mg/kg							
8081B	Dieldrin	60-57-1	--	--	mg/kg							
8081B	Endosulfan sulfate	1031-07-8	--	--	mg/kg							
8081B	Endrin	72-20-8	--	--	mg/kg							
8081B	Endrin Aldehyde	7421-93-4	--	--	mg/kg							
8081B	Endrin Ketone	53494-70-5	--	--	mg/kg							
8081B	gamma BHC (Lindane)	58-89-9	--	--	mg/kg							
8081B	Heptachlor	76-44-8	--	--	mg/kg							
8081B	Heptachlor Epoxide	1024-57-3	--	--	mg/kg							
8081B	Methoxychlor	72-43-5	--	--	mg/kg							
8081B	P,P'-DDD	72-54-8	--	--	mg/kg							
8081B	P,P'-DDE	72-55-9	--	--	mg/kg							
8081B	P,P'-DDT	50-29-3	--	--	mg/kg							
8081B	Toxaphene	8001-35-2	--	--	mg/kg							
8081B	trans-Chlordane	5103-74-2	--	--	mg/kg							
SVOC												
8270E	2,4,5-Trichlorophenol	95-95-4	--	--	mg/kg							
8270E	2,4,6-Trichlorophenol	88-06-2	--	--	mg/kg							
8270E	2,4-Dichlorophenol	120-83-2	--	--	mg/kg							
8270E	2,4-Dimethylphenol	105-67-9	--	--	mg/kg							
8270E	2,4-Dinitrophenol	51-28-5	--	--	mg/kg							
8270E	2,4-Dinitrotoluene	121-14-2	--	--	mg/kg							
8270E	2,6-Dinitrotoluene	606-20-2	--	--	mg/kg							
8270E	2-Chloronaphthalene	91-58-7	--	--	mg/kg							
8270E	2-Chlorophenol	95-57-8	--	--	mg/kg							
8270E	2-Methylnaphthalene	91-57-6	--	--	mg/kg							
8270E	2-Methylphenol (O-Cresol)	95-48-7	--	--	mg/kg							
8270E	2-Nitroaniline	88-74-4	--	--	mg/kg							

Table 9
November 2023 Sediment Data
Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Sample ID	PBA-01-SD-0-8	DUP-SD	PBA-02-SD-0-10	PBA-03-SD-0-12	
						Sample Date	11/03/2023	11/03/2023	11/02/2023	11/02/2023	
Sample Type (N: Normal; FD: Field Duplicate)						0-8in	0-8in	0-10in	0-12in		
						N	FD	N	N		
						Result	Qual	Result	Qual	Result	Qual
8270E	2-Nitrophenol	88-75-5	--	--	mg/kg						
8270E	3,3'-Dichlorobenzidine	91-94-1	--	--	mg/kg						
8270E	3-Nitroaniline	99-09-2	--	--	mg/kg						
8270E	4,6-Dinitro-2-Methylphenol	534-52-1	--	--	mg/kg						
8270E	4-Bromodiphenyl ether (PBDE-003)	101-55-3	--	--	mg/kg						
8270E	4-Chloro-3-Methylphenol	59-50-7	--	--	mg/kg						
8270E	4-Chloroaniline	106-47-8	--	--	mg/kg						
8270E	4-Chlorophenyl Phenyl Ether	7005-72-3	--	--	mg/kg						
8270E	4-Methylphenol (P-Cresol)	106-44-5	--	--	mg/kg						
8270E	4-Nitroaniline	100-01-6	--	--	mg/kg						
8270E	4-Nitrophenol	100-02-7	--	--	mg/kg						
8270E	Acenaphthene	83-32-9	--	--	mg/kg						
8270E	Acenaphthylene	208-96-8	--	--	mg/kg						
8270E	Acetophenone	98-86-2	--	--	mg/kg						
8270E	Anthracene	120-12-7	--	--	mg/kg						
8270E	Atrazine	1912-24-9	--	--	mg/kg						
8270E	Benzaldehyde	100-52-7	--	--	mg/kg						
8270E	Benzo[a]anthracene	56-55-3	--	--	mg/kg						
8270E	Benzo[a]pyrene	50-32-8	--	--	mg/kg						
8270E	Benzo[b]fluoranthene	205-99-2	--	--	mg/kg						
8270E	Benzo[g,h,i]perylene	191-24-2	--	--	mg/kg						
8270E	Benzo[k]fluoranthene	207-08-9	--	--	mg/kg						
8270E	Benzyl Butyl Phthalate	85-68-7	--	--	mg/kg						
8270E	Biphenyl (Diphenyl)	92-52-4	--	--	mg/kg						
8270E	Bis(2-Chloroethoxy) Methane	111-91-1	--	--	mg/kg						
8270E	Bis(2-Chloroethyl) Ether	111-44-4	--	--	mg/kg						
8270E	Bis(2-Chloroisopropyl) Ether	108-60-1	--	--	mg/kg						
8270E	Bis(2-ethylhexyl) phthalate	117-81-7	--	--	mg/kg						
8270E	Caprolactam	105-60-2	--	--	mg/kg						
8270E	Carbazole	86-74-8	--	--	mg/kg						
8270E	Chrysene	218-01-9	--	--	mg/kg						
8270E	Dibenz[a,h]anthracene	53-70-3	--	--	mg/kg						
8270E	Dibenzofuran	132-64-9	--	--	mg/kg						
8270E	Diethyl Phthalate	84-66-2	--	--	mg/kg						
8270E	Dimethyl phthalate	131-11-3	--	--	mg/kg						
8270E	Di-N-Butyl Phthalate	84-74-2	--	--	mg/kg						
8270E	Di-n-octyl phthalate	117-84-0	--	--	mg/kg						
8270E	Fluoranthene	206-44-0	--	--	mg/kg						
8270E	Fluorene	86-73-7	--	--	mg/kg						
8270E	Hexachlorobenzene	118-74-1	--	--	mg/kg						
8270E	Hexachlorobutadiene	87-68-3	--	--	mg/kg						
8270E	Hexachlorocyclopentadiene	77-47-4	--	--	mg/kg						

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Sample ID	Sample Date	Sample Depth	Sample Type (N: Normal; FD: Field Duplicate)	PBA-01-SD-0-8		DUP-SD		PBA-02-SD-0-10		PBA-03-SD-0-12		
				11/03/2023	0-8in	11/03/2023	0-8in	11/02/2023	0-10in	11/02/2023	0-12in	
				N	FD	N	N	N	N	N		
Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Result	Qual	Result	Qual	Result	Qual	Result	Qual
8270E	Hexachloroethane	67-72-1	--	mg/kg								
8270E	Indeno(1,2,3-C,D)Pyrene	193-39-5	--	mg/kg								
8270E	Isophorone	78-59-1	--	mg/kg								
8270E	Naphthalene	91-20-3	--	mg/kg								
8270E	Nitrobenzene	98-95-3	--	mg/kg								
8270E	N-Nitrosodi-N-Propylamine	621-64-7	--	mg/kg								
8270E	N-Nitrosodiphenylamine	86-30-6	--	mg/kg								
8270E	Pentachlorophenol	87-86-5	--	mg/kg								
8270E	Phenanthrene	85-01-8	--	mg/kg								
8270E	Phenol	108-95-2	--	mg/kg								
8270E	Pyrene	129-00-0	--	mg/kg								
VOC												
8260D	1,1,1-Trichloroethane	71-55-6	--	mg/kg								
8260D	1,1,2,2-Tetrachloroethane	79-34-5	--	mg/kg								
8260D	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--	mg/kg								
8260D	1,1,2-Trichloroethane	79-00-5	--	mg/kg								
8260D	1,1-Dichloroethane	75-34-3	--	mg/kg								
8260D	1,1-Dichloroethene	75-35-4	--	mg/kg								
8260D	1,2,4-Trichlorobenzene	120-82-1	--	mg/kg								
8260D	1,2-Dibromo-3-Chloropropane	96-12-8	--	mg/kg								
8260D	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	--	mg/kg								
8260D	1,2-Dichlorobenzene	95-50-1	--	mg/kg								
8260D	1,2-Dichloroethane	107-06-2	--	mg/kg								
8260D	1,2-Dichloropropane	78-87-5	--	mg/kg								
8260D	1,3-Dichlorobenzene	541-73-1	--	mg/kg								
8260D	1,4-Dichlorobenzene	106-46-7	--	mg/kg								
8260D	2-Hexanone	591-78-6	--	mg/kg								
8260D	Acetone	67-64-1	--	mg/kg								
8260D	Benzene	71-43-2	--	mg/kg								
8260D	Bromodichloromethane	75-27-4	--	mg/kg								
8260D	Bromoform	75-25-2	--	mg/kg								
8260D	Bromomethane	74-83-9	--	mg/kg								
8260D	Carbon Disulfide	75-15-0	--	mg/kg								
8260D	Carbon Tetrachloride	56-23-5	--	mg/kg								
8260D	Chlorobenzene	108-90-7	--	mg/kg								
8260D	Chloroethane	75-00-3	--	mg/kg								
8260D	Chloroform	67-66-3	--	mg/kg								
8260D	Chloromethane	74-87-3	--	mg/kg								
8260D	cis-1,2-Dichloroethene	156-59-2	--	mg/kg								
8260D	cis-1,3-Dichloropropene	10061-01-5	--	mg/kg								
8260D	Cyclohexane	110-82-7	--	mg/kg								
8260D	Dibromochloromethane	124-48-1	--	mg/kg								

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Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
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						Sample ID	PBA-01-SD-0-8	DUP-SD	PBA-02-SD-0-10	PBA-03-SD-0-12	
						Sample Date	11/03/2023	11/03/2023	11/02/2023	11/02/2023	
						Sample Depth	0-8in	0-8in	0-10in	0-12in	
						Sample Type (N: Normal; FD: Field Duplicate)	N	FD	N	N	
	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Result	Qual	Result	Qual	Result	Qual
8260D	Dichlorodifluoromethane	75-71-8	--	--	mg/kg						
8260D	Ethylbenzene	100-41-4	--	--	mg/kg						
8260D	Isopropylbenzene (Cumene)	98-82-8	--	--	mg/kg						
8260D	Methyl Acetate	79-20-9	--	--	mg/kg						
8260D	Methyl Ethyl Ketone	78-93-3	--	--	mg/kg						
8260D	Methyl Isobutyl Ketone	108-10-1	--	--	mg/kg						
8260D	Methylcyclohexane	108-87-2	--	--	mg/kg						
8260D	Methylene Chloride	75-09-2	--	--	mg/kg						
8260D	Styrene	100-42-5	--	--	mg/kg						
8260D	Tert-Butyl Methyl Ether	1634-04-4	--	--	mg/kg						
8260D	Tetrachloroethylene	127-18-4	--	--	mg/kg						
8260D	Toluene	108-88-3	--	--	mg/kg						
8260D	trans-1,2-Dichloroethene	156-60-5	--	--	mg/kg						
8260D	trans-1,3-Dichloropropene	10061-02-6	--	--	mg/kg						
8260D	Trichloroethylene	79-01-6	--	--	mg/kg						
8260D	Trichlorofluoromethane	75-69-4	--	--	mg/kg						
8260D	Vinyl Chloride	75-01-4	--	--	mg/kg						
8260D	Xylenes	1330-20-7	--	--	mg/kg						

Table 9
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						Sample ID	PBA-04-SD-0-8	PBA-BKG-SD-0-8	PBA-BKG-DUP-SD-0-8		
						Sample Date	11/02/2023	11/02/2023	11/02/2023		
						Sample Depth	0-8in	0-8in	0-8in		
						Sample Type (N: Normal; FD: Field Duplicate)	N	N	FD		
	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Result	Qual	Result	Qual	Result	Qual
AVS/SEM											
9034 AVS/SEM	Acid Volatile Sulfides	18496-25-8-AVS	--	--	μmol/g	0.23	U	0.56	JF1	0.24	J
CALC	(SEM-AVS)/f _{OC} (μmol/g _{OC})	SEM-AVS-OC	--	--	μmol/g	-4.999217391		34.11876471			
Lloyd Kahn	Total Organic Carbon	TOC	--	--	mg/kg	23000		17000	F1	9700	
6010D AVS/SEM	Copper	7440-50-8	--	--	μmol/g	0.024	B	0.16		0.12	B
6010D AVS/SEM	Zinc	7440-66-6	--	--	μmol/g	0.091		0.98	F1	0.87	
7470A AVS/SEM	Mercury	7439-97-6	--	--	μmol/g	0.000018	U	0.000019	U	0.000041	B
SEM	SEM/AVS Ratio	SEM/AVS	--	--	None	0		2		4.1	
GEOPHYSICAL											
D422	Coarse Sand	COARSESAND	--	--	%	0.3		1			
D422	Fine Sand	FINESAND	--	--	%	38.1		60.5			
D422	Fines	FINES	--	--	%	60		26.2			
D422	Gravel	GRAVEL	--	--	%	0		2.1			
D422	Medium Sand	GSMSAND	--	--	%	1.6		10.2			
D422	Percent Passing 0.375 Inch (3/8 Inch Sieve)	SIEVE0.375IN	--	--	% Passing	100		100			
D422	Percent Passing 0.75 Inch (3/4 Inch Sieve)	SIEVE0.75IN	--	--	% Passing	100		100			
D422	Percent Passing 1 Inch (1 Inch Sieve)	SIEVE1.0IN	--	--	% Passing	100		100			
D422	Percent Passing 1.5 Inch (1.5 Inch Sieve)	SIEVE1.5IN	--	--	% Passing	100		100			
D422	Percent Passing 2 Inch (2 Inch Sieve)	SIEVE2.0IN	--	--	% Passing	100		100			
D422	Sand	308075-07-2	--	--	%	40		71.7			
D422	Sieve No. 10, Percent Passing	SIEVE10	--	--	% Passing	99.7		96.9			
D422	Sieve No. 200, Percent Passing	SIEVE200	--	--	% Passing	60		26.2			
D422	Sieve No. 4, Percent Passing	SIEVE4	--	--	% Passing	100		97.9			
D422	Sieve No. 40, Percent Passing	SIEVE40	--	--	% Passing	98.1		86.7			
D422	Sieve No. 80, Percent Passing	SIEVE80	--	--	% Passing	84.7		49.3			
D422	Sieve, No. 100, Percent Passing	SIEVE100	--	--	% Passing	78.3		41.8			
D422	Sieve, No. 20, Percent Passing	SIEVE20	--	--	% Passing	99.4		95.1			
D422	Sieve, No. 60, Percent Passing	SIEVE60	--	--	% Passing	92.7		64.2			
D422	Sieve-US Std. 3-inch (75 mm)	SIEVE3INCH	--	--	% Passing	100		100			
METALS											
1630	Methylmercury	22967-92-6	--	--	mg/kg	0.0002					
6020B	Aluminum	7429-90-5	--	--	mg/kg			7400		6500	
6020B	Antimony	7440-36-0	--	--	mg/kg			0.26	JF2	0.27	
6020B	Arsenic	7440-38-2	--	--	mg/kg			6.6	F2	6.9	
6020B	Barium	7440-39-3	--	--	mg/kg			55	F1F2	54	
6020B	Beryllium	7440-41-7	--	--	mg/kg			0.36	F2	0.29	
6020B	Cadmium	7440-43-9	--	--	mg/kg			0.25	F2	0.23	
6020B	Calcium	7440-70-2	--	--	mg/kg			6700		6700	
6020B	Chromium, total	7440-47-3	--	--	mg/kg			11	F2	10	
6020B	Cobalt	7440-48-4	--	--	mg/kg			5.5	F2	5.4	
6020B	Copper	7440-50-8	32	150	mg/kg	14		20	F2	14	
6020B	Iron	7439-89-6	--	--	mg/kg			18000		18000	

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Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Sample ID	PBA-04-SD-0-8	PBA-BKG-SD-0-8	PBA-BKG-DUP-SD-0-8		
						Sample Date	11/02/2023	11/02/2023	11/02/2023		
Sample Type (N: Normal; FD: Field Duplicate)						0-8in	0-8in	0-8in			
						N	N	FD			
						Result	Qual	Result	Qual	Result	Qual
6020B	Lead	7439-92-1	--	--	mg/kg			35 F2		38	
6020B	Magnesium	7439-95-4	--	--	mg/kg			2500 F1		2300	
6020B	Manganese	7439-96-5	--	--	mg/kg			230 F1F2		250	
6020B	Nickel	7440-02-0	--	--	mg/kg			25 F2		14	
6020B	Potassium	7440-09-7	--	--	mg/kg			1300 F1		1000	
6020B	Selenium	7782-49-2	<u>5</u>	5	mg/kg	0.27 J		0.28 JF2		0.27 J	
6020B	Silver	7440-22-4	--	--	mg/kg			0.22 F2		0.08 J	
6020B	Sodium	7440-23-5	--	--	mg/kg			54 JF2		49 J	
6020B	Thallium	7440-28-0	--	--	mg/kg			0.1 JF2		0.072 J	
6020B	Vanadium	7440-62-2	--	--	mg/kg			13 F2		12	
6020B	Zinc	7440-66-6	<u>120</u>	460	mg/kg	45		97 F1F2		110	
7471B	Mercury	7439-97-6	<u>0.2</u>	1	mg/kg	0.029 U		0.12		0.089	
SEQUENTIAL EXTRACTION											
6010B SEP Step 1	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 1	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 1	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Step 2	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 2	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 2	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Step 3	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 3	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 3	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Step 4	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 4	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 4	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Step 5	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 5	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 5	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Step 6	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 6	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 6	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Step 7	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Step 7	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Step 7	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Sum 1-7	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Sum 1-7	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Sum 1-7	Zinc	7440-66-6	--	--	mg/kg						
6010B SEP Total	Copper	7440-50-8	--	--	mg/kg						
6010B SEP Total	Selenium	7782-49-2	--	--	mg/kg						
6010B SEP Total	Zinc	7440-66-6	--	--	mg/kg						
7470A SEP Step 1	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Step 2	Mercury	7439-97-6	--	--	mg/kg						

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Hercules Site
Port Ewen, NY

	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Sample ID	PBA-04-SD-0-8	PBA-BKG-SD-0-8	PBA-BKG-DUP-SD-0-8		
						Sample Date	11/02/2023	11/02/2023	11/02/2023		
Sample Type (N: Normal; FD: Field Duplicate)						0-8in	0-8in	0-8in			
						N	N	FD			
						Result	Qual	Result	Qual	Result	Qual
7470A SEP Step 3	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Step 4	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Step 5	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Step 6	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Step 7	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Sum 1-7	Mercury	7439-97-6	--	--	mg/kg						
7470A SEP Total	Mercury	7439-97-6	--	--	mg/kg						
PESTICIDES											
8081B	Aldrin	309-00-2	--	--	mg/kg			0.0002 UF1*3		0.00018 U*3	
8081B	alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	--	--	mg/kg			0.00016 UF2F1*3		0.00015 U*3	
8081B	Alpha Endosulfan	959-98-8	--	--	mg/kg			0.00017 UF1*3		0.00016 U*3	
8081B	beta BHC (Beta Hexachlorocyclohexane)	319-85-7	--	--	mg/kg			0.00017 UF1*3		0.00016 U*3	
8081B	Beta Endosulfan	33213-65-9	--	--	mg/kg			0.00014 UF1		0.00013 U	
8081B	cis-Chlordane	5103-71-9	--	--	mg/kg			0.00016 U*3F1		0.00015 U*3	
8081B	delta BHC (Delta Hexachlorocyclohexane)	319-86-8	--	--	mg/kg			0.0002 UF1*3		0.00019 U*3	
8081B	Dieldrin	60-57-1	--	--	mg/kg			0.00016 UF1		0.00015 U	
8081B	Endosulfan sulfate	1031-07-8	--	--	mg/kg			0.00029 UF1		0.00027 U	
8081B	Endrin	72-20-8	--	--	mg/kg			0.00012 UF1		0.00011 U	
8081B	Endrin Aldehyde	7421-93-4	--	--	mg/kg			0.00023 UF1		0.00021 U	
8081B	Endrin Ketone	53494-70-5	--	--	mg/kg			8.70E-05 UF2F1		8.10E-05 U	
8081B	gamma BHC (Lindane)	58-89-9	--	--	mg/kg			0.00016 UF1*3		0.00015 U*3	
8081B	Heptachlor	76-44-8	--	--	mg/kg			0.0002 UF2F1*3		0.00018 U*3	
8081B	Heptachlor Epoxide	1024-57-3	--	--	mg/kg			0.00016 UF1*3		0.00015 U*3	
8081B	Methoxychlor	72-43-5	--	--	mg/kg			0.00025 UF1		0.00023 U	
8081B	P,P'-DDD	72-54-8	--	--	mg/kg			0.00013 UF1		0.00039 J	
8081B	P,P'-DDE	72-55-9	--	--	mg/kg			0.00013 UF1		0.00012 U	
8081B	P,P'-DDT	50-29-3	--	--	mg/kg			0.00045 UF1		0.00042 U	
8081B	Toxaphene	8001-35-2	--	--	mg/kg			0.017 U*3		0.016 U*3	
8081B	trans-Chlordane	5103-74-2	--	--	mg/kg			0.00015 U*3F1		0.00014 U*3	
SVOC											
8270E	2,4,5-Trichlorophenol	95-95-4	--	--	mg/kg			0.086 U		0.081 U	
8270E	2,4,6-Trichlorophenol	88-06-2	--	--	mg/kg			0.082 U		0.078 U	
8270E	2,4-Dichlorophenol	120-83-2	--	--	mg/kg			0.019 U		0.018 U	
8270E	2,4-Dimethylphenol	105-67-9	--	--	mg/kg			0.083 U		0.079 U	
8270E	2,4-Dinitrophenol	51-28-5	--	--	mg/kg			1.5 U		1.5 U	
8270E	2,4-Dinitrotoluene	121-14-2	--	--	mg/kg			0.15 U		0.14 U	
8270E	2,6-Dinitrotoluene	606-20-2	--	--	mg/kg			0.096 U		0.091 U	
8270E	2-Chloronaphthalene	91-58-7	--	--	mg/kg			0.011 U		0.011 U	
8270E	2-Chlorophenol	95-57-8	--	--	mg/kg			0.091 U		0.086 U	
8270E	2-Methylnaphthalene	91-57-6	--	--	mg/kg			0.012 U		0.011 U	
8270E	2-Methylphenol (O-Cresol)	95-48-7	--	--	mg/kg			0.071 U		0.067 U	
8270E	2-Nitroaniline	88-74-4	--	--	mg/kg			0.11 U		0.11 U	

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Sample ID	Sample Date	Sample Depth	Sample Type (N: Normal; FD: Field Duplicate)	PBA-04-SD-0-8 11/02/2023 0-8in N		PBA-BKG-SD-0-8 11/02/2023 0-8in N		PBA-BKG-DUP-SD-0-8 11/02/2023 0-8in FD	
				Result	Qual	Result	Qual	Result	Qual
Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit					
8270E	2-Nitrophenol	88-75-5	--	mg/kg		0.091 U		0.087 U	
8270E	3,3'-Dichlorobenzidine	91-94-1	--	mg/kg		0.23 UF1		0.22 U	
8270E	3-Nitroaniline	99-09-2	--	mg/kg		0.063 U		0.06 U	
8270E	4,6-Dinitro-2-Methylphenol	534-52-1	--	mg/kg		0.43 UF1		0.41 U	
8270E	4-Bromodiphenyl ether (PBDE-003)	101-55-3	--	mg/kg		0.11 U		0.1 U	
8270E	4-Chloro-3-Methylphenol	59-50-7	--	mg/kg		0.087 U		0.083 U	
8270E	4-Chloroaniline	106-47-8	--	mg/kg		0.065 U		0.062 U	
8270E	4-Chlorophenyl Phenyl Ether	7005-72-3	--	mg/kg		0.083 U		0.078 U	
8270E	4-Methylphenol (P-Cresol)	106-44-5	--	mg/kg		0.073 U		0.069 U	
8270E	4-Nitroaniline	100-01-6	--	mg/kg		0.092 U		0.087 U	
8270E	4-Nitrophenol	100-02-7	--	mg/kg		0.17 U		0.17 U	
8270E	Acenaphthene	83-32-9	--	mg/kg		0.014 U		0.014 U	
8270E	Acenaphthylene	208-96-8	--	mg/kg		0.011 U		0.01 U	
8270E	Acetophenone	98-86-2	--	mg/kg		0.088 U		0.083 U	
8270E	Anthracene	120-12-7	--	mg/kg		0.013 U		0.034 J	
8270E	Atrazine	1912-24-9	--	mg/kg		0.11 UF1		0.1 U	
8270E	Benzaldehyde	100-52-7	--	mg/kg		0.031 UF1		0.029 U	
8270E	Benzo[a]anthracene	56-55-3	--	mg/kg		0.05 F1		0.13	
8270E	Benzo[a]pyrene	50-32-8	--	mg/kg		0.058		0.13	
8270E	Benzo[b]fluoranthene	205-99-2	--	mg/kg		0.069 F1		0.19	
8270E	Benzo[g,h,i]perylene	191-24-2	--	mg/kg		0.046 JF1		0.12	
8270E	Benzo[k]fluoranthene	207-08-9	--	mg/kg		0.031 J		0.068	
8270E	Benzyl Butyl Phthalate	85-68-7	--	mg/kg		0.17 U		0.16 U	
8270E	Biphenyl (Diphenyl)	92-52-4	--	mg/kg		0.09 U		0.086 U	
8270E	Bis(2-Chloroethoxy) Methane	111-91-1	--	mg/kg		0.091 U		0.086 U	
8270E	Bis(2-Chloroethyl) Ether	111-44-4	--	mg/kg		0.009 U		0.0085 U	
8270E	Bis(2-Chloroisopropyl) Ether	108-60-1	--	mg/kg		0.018 U		0.018 U	
8270E	Bis(2-ethylhexyl) phthalate	117-81-7	--	mg/kg		0.27 U		0.25 U	
8270E	Caprolactam	105-60-2	--	mg/kg		0.16 U		0.15 U	
8270E	Carbazole	86-74-8	--	mg/kg		0.012 U		0.021 J	
8270E	Chrysene	218-01-9	--	mg/kg		0.066 F1		0.17	
8270E	Dibenz[a,h]anthracene	53-70-3	--	mg/kg		0.032 U		0.035 J	
8270E	Dibenzofuran	132-64-9	--	mg/kg		0.091 U		0.086 U	
8270E	Diethyl Phthalate	84-66-2	--	mg/kg		0.087 U		0.083 U	
8270E	Dimethyl phthalate	131-11-3	--	mg/kg		0.098 U		0.093 U	
8270E	Di-N-Butyl Phthalate	84-74-2	--	mg/kg		0.11 U		0.1 U	
8270E	Di-n-octyl phthalate	117-84-0	--	mg/kg		0.14 U		0.14 U	
8270E	Fluoranthene	206-44-0	--	mg/kg		0.1 F1		0.32	
8270E	Fluorene	86-73-7	--	mg/kg		0.0098 U		0.0092 U	
8270E	Hexachlorobenzene	118-74-1	--	mg/kg		0.018 U		0.017 U	
8270E	Hexachlorobutadiene	87-68-3	--	mg/kg		0.015 U		0.014 U	
8270E	Hexachlorocyclopentadiene	77-47-4	--	mg/kg		0.025 UF1		0.024 U	

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	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Sample ID	PBA-04-SD-0-8	PBA-BKG-SD-0-8	PBA-BKG-DUP-SD-0-8		
						Sample Date	11/02/2023	11/02/2023	11/02/2023		
Sample Type (N: Normal; FD: Field Duplicate)						0-8in	0-8in	0-8in			
						N	N	N	FD		
						Result	Qual	Result	Qual	Result	Qual
8270E	Hexachloroethane	67-72-1	--	--	mg/kg			0.088 U		0.083 U	
8270E	Indeno(1,2,3-C,D)Pyrene	193-39-5	--	--	mg/kg			0.032 JF1		0.096	
8270E	Isophorone	78-59-1	--	--	mg/kg			0.093 U		0.088 U	
8270E	Naphthalene	91-20-3	--	--	mg/kg			0.0097 U		0.0092 U	
8270E	Nitrobenzene	98-95-3	--	--	mg/kg			0.091 U		0.086 U	
8270E	N-Nitrosodi-N-Propylamine	621-64-7	--	--	mg/kg			0.017 U		0.016 U	
8270E	N-Nitrosodiphenylamine	86-30-6	--	--	mg/kg			0.083 U		0.078 U	
8270E	Pentachlorophenol	87-86-5	--	--	mg/kg			0.4 U		0.38 U	
8270E	Phenanthrene	85-01-8	--	--	mg/kg			0.045 JF1		0.16	
8270E	Phenol	108-95-2	--	--	mg/kg			0.075 U		0.071 U	
8270E	Pyrene	129-00-0	--	--	mg/kg			0.091 F1		0.26	
VOC											
8260D	1,1,1-Trichloroethane	71-55-6	--	--	mg/kg			0.0022 U		0.0023 U	
8260D	1,1,2,2-Tetrachloroethane	79-34-5	--	--	mg/kg			0.002 U		0.0021 U	
8260D	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--	--	mg/kg			0.0027 UF1		0.0027 U	
8260D	1,1,2-Trichloroethane	79-00-5	--	--	mg/kg			0.0013 U		0.0013 U	
8260D	1,1-Dichloroethane	75-34-3	--	--	mg/kg			0.0022 U		0.0022 U	
8260D	1,1-Dichloroethene	75-35-4	--	--	mg/kg			0.003 U		0.0031 U	
8260D	1,2,4-Trichlorobenzene	120-82-1	--	--	mg/kg			0.0034 U		0.0035 U	
8260D	1,2-Dibromo-3-Chloropropane	96-12-8	--	--	mg/kg			0.0043 U		0.0044 U	
8260D	1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	--	--	mg/kg			0.0018 U		0.0019 U	
8260D	1,2-Dichlorobenzene	95-50-1	--	--	mg/kg			0.0023 U		0.0023 U	
8260D	1,2-Dichloroethane	107-06-2	--	--	mg/kg			0.0019 U		0.002 U	
8260D	1,2-Dichloropropane	78-87-5	--	--	mg/kg			0.0018 U		0.0018 U	
8260D	1,3-Dichlorobenzene	541-73-1	--	--	mg/kg			0.0041 U		0.0042 U	
8260D	1,4-Dichlorobenzene	106-46-7	--	--	mg/kg			0.002 U		0.002 U	
8260D	2-Hexanone	591-78-6	--	--	mg/kg			0.0021 U		0.0021 U	
8260D	Acetone	67-64-1	--	--	mg/kg			0.0052 U		0.02 J	
8260D	Benzene	71-43-2	--	--	mg/kg			0.0019 U		0.0019 U	
8260D	Bromodichloromethane	75-27-4	--	--	mg/kg			0.0031 U		0.0032 U	
8260D	Bromoform	75-25-2	--	--	mg/kg			0.0034 U		0.0034 U	
8260D	Bromomethane	74-83-9	--	--	mg/kg			0.0031 U		0.0031 U	
8260D	Carbon Disulfide	75-15-0	--	--	mg/kg			0.0054 U		0.0054 U	
8260D	Carbon Tetrachloride	56-23-5	--	--	mg/kg			0.0027 U		0.0028 U	
8260D	Chlorobenzene	108-90-7	--	--	mg/kg			0.0017 U		0.0018 U	
8260D	Chloroethane	75-00-3	--	--	mg/kg			0.0039 U*-		0.004 U	
8260D	Chloroform	67-66-3	--	--	mg/kg			0.0045 U		0.0046 U	
8260D	Chloromethane	74-87-3	--	--	mg/kg			0.0027 U		0.0027 U	
8260D	cis-1,2-Dichloroethene	156-59-2	--	--	mg/kg			0.002 U		0.0021 U	
8260D	cis-1,3-Dichloropropene	10061-01-5	--	--	mg/kg			0.003 U		0.003 U	
8260D	Cyclohexane	110-82-7	--	--	mg/kg			0.0032 UF1		0.0032 U	
8260D	Dibromochloromethane	124-48-1	--	--	mg/kg			0.0033 U		0.0034 U	

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	Chemical	CAS No.	Site-Specific Freshwater SGV: Class A	Site-Specific Freshwater SGV: Class C	Unit	Sample ID	PBA-04-SD-0-8	PBA-BKG-SD-0-8	PBA-BKG-DUP-SD-0-8		
						Sample Date	11/02/2023	11/02/2023	11/02/2023		
Sample Type (N: Normal; FD: Field Duplicate)						0-8in	0-8in	0-8in			
						N	N	FD			
						Result	Qual	Result	Qual	Result	Qual
8260D	Dichlorodifluoromethane	75-71-8	--	--	mg/kg			0.0033 U		0.0034 U	
8260D	Ethylbenzene	100-41-4	--	--	mg/kg			0.0025 U		0.0025 U	
8260D	Isopropylbenzene (Cumene)	98-82-8	--	--	mg/kg			0.0035 U		0.0035 U	
8260D	Methyl Acetate	79-20-9	--	--	mg/kg			0.0099 U		0.01 U	
8260D	Methyl Ethyl Ketone	78-93-3	--	--	mg/kg			0.0034 U		0.0035 U	
8260D	Methyl Isobutyl Ketone	108-10-1	--	--	mg/kg			0.0025 U		0.0025 U	
8260D	Methylcyclohexane	108-87-2	--	--	mg/kg			0.0032 U		0.0033 U	
8260D	Methylene Chloride	75-09-2	--	--	mg/kg			0.0061 U		0.0061 U	
8260D	Styrene	100-42-5	--	--	mg/kg			0.002 U		0.002 U	
8260D	Tert-Butyl Methyl Ether	1634-04-4	--	--	mg/kg			0.002 U		0.002 U	
8260D	Tetrachloroethylene	127-18-4	--	--	mg/kg			0.0027 U		0.0027 U	
8260D	Toluene	108-88-3	--	--	mg/kg			0.0019 U		0.002 U	
8260D	trans-1,2-Dichloroethene	156-60-5	--	--	mg/kg			0.0024 U		0.0024 U	
8260D	trans-1,3-Dichloropropene	10061-02-6	--	--	mg/kg			0.003 U		0.0031 U	
8260D	Trichloroethylene	79-01-6	--	--	mg/kg			0.0021 U		0.0021 U	
8260D	Trichlorofluoromethane	75-69-4	--	--	mg/kg			0.0056 U*+		0.0056 U	
8260D	Vinyl Chloride	75-01-4	--	--	mg/kg			0.0048 U		0.0049 U	
8260D	Xylenes	1330-20-7	--	--	mg/kg			0.0097 U		0.0098 U	

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Notes:

Results that exceeds Site-Specific Freshwater Sediment Guidance values: Class A are bold and underlined.

Results that exceeds Site-Specific Freshwater Sediment Guidance values: Class C are shaded yellow.

% = percent

*3 = ITSD response or retention time outside acceptable limits

*- = LCS and/or LCSD is outside acceptance limits, low biased

*+ = LCS and/or LCSD is outside acceptance limits, high biased

$\mu\text{mol/g}_{\text{OC}}$ = micromol per gram organic carbon

AVS = acid-volatile sulfides

B = compound was found in the blank and sample

CAS = Chemical Abstracts Service

F1 = matrix spike and/or matrix spike duplicate recovery exceeds control limits

F2 = matrix spike/matrix spike duplicate relative percent difference exceeds control limits

f_{OC} = fraction organic carbon

J = Result is less than or equal to the method detection limit and concentration is an approximate value

mg/kg = milligram per kilogram

mm = millimeter

NYSDEC = New York State Department of Environmental Conservation

SEM = simultaneously extracted metals

SGV = sediment guidance value

U = analyte was analyzed for but not detected

Sources:

NYSDEC. 2014. Division of Fish, Wildlife, and Marine Resources (DFWMR) Screening and Assessment of Contaminated Sediment.

Nagpal, N.K., Pommen, L.W., and L.G. Swain. 1995. Approved and working criteria for water quality guidelines for British Columbia.

ISBN 0-7726-3774-1. Water Quality Branch. Ministry of Environment. Lands and Parks. Victoria, British Columbia. 28 pp.

USEPA. 2005. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver and Zinc). Office of Research and Development. USEPA-600-R-02 011.

TABLE 10
Groundwater Analytical Results
Historic Detections of Volatile Organic Compounds – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																							
		1,1,1-Trichloroethane (ug/L)	1,1,2-Trichloroethane (ug/L)	1,1-Dichloroethane (ug/L)	1,1-Dichloroethene (ug/L)	1,2,4-Trichlorobenzene (ug/L)	1,2-Dichloroethane (ug/L)	2-Butanone (MEK) (ug/L)	Acetone (ug/L)	Benzene (ug/L)	Chloroform (ug/L)	cis-1,2-Dichloroethene (ug/L)	Cyclohexane (ug/L)	Ethylbenzene (ug/L)	Methyl acetate (ug/L)	Methylene chloride (ug/L)	Methyl-tertiary-butyl ether (ug/L)	Tetrachloroethene (ug/L)	Toluene (ug/L)	trans-1,2-Dichloroethene (ug/L)	Trichloroethene (ug/L)	Vinyl chloride (ug/L)	Xylene (Total) (ug/L)		
NYSDEC CLASS GA GW STANDARD		5	NGV	5	5	NGV	50	50	1	7	5	NGV	NGV	NGV	NGV	NGV	5	NGV	5	2	2	NGV			
		28,000	< 500	140 J	37,000	< 500	150 J	< 5,000	< 12,000	< 500	< 500	480 J	< 500	< 500	< 500*	< 2,500	< 5,000	< 500	< 500	< 500	41,000	< 500	< 1,000		
MW-3	4/14/2011	19,000	< 250	130 J	22,000	< 250	94 J	< 2,500	< 6,300	< 250	< 250	340	< 250	< 250	< 250	< 1,300	< 2,500	< 250	< 250	77 J	< 250	< 250	24,000	< 250	< 500
	10/11/2011	22,000	< 500	160 J	29,000	< 500	130 J	< 5,000	< 13,000	< 500	< 500	720	< 500	< 500	< 500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	37,000	< 500	< 1,000
	10/24/2012	15,000	< 500	< 500	23,000	< 500	< 500	< 5,000	< 13,000	< 500	< 500	400 J	< 500	< 500	< 500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	23,000	< 500	< 1,000
	4/17/2013	18,000	< 500	< 500	17,000	< 500	110 J	< 5,000	< 13,000	< 500	< 500	420 J	< 500	< 500	< 500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	30,000	< 500	< 1,000
	10/24/2013	17,000	< 500	< 500	19,000	< 500	< 500	< 5,000	< 13,000	< 500	< 500	540	< 500	< 500	< 500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	31,000	< 500	< 1,000
	4/30/2014	17,000	< 500	140 J	20,000	< 500	140 J	< 5,000	< 13,000	< 500	700	< 500	< 500	< 500	< 500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	36,000	< 500	< 1,000
	10/23/2014	15,000	< 500	< 500	27,000	< 500	220 J	< 5,000	< 5,000	< 500	< 500	890	< 500	< 500	< 500	< 2,500	< 2,500	< 5,000	< 5,000	130 J	< 500	< 500	33,000	< 500	< 1,000
	4/15/2015	13,000	< 500	< 500	23,000	< 2,500	< 500	< 5,000	< 5,000	< 500	< 500	610	< 500	< 500	< 2,500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	30,000	< 500	< 500
	11/11/2015	11,000	< 500	< 500	23,000	< 2,500	< 500	< 5,000	< 5,000	< 500	< 500	660	< 500	< 500	< 2,500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	28,000	< 500	< 500
	4/26/2016	12,000	< 250	< 250	28,000	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	750	< 250	< 250	< 1,300	< 1,300	< 2,500	< 250	< 250	< 250	< 250	< 250	28,000	< 250	< 250
	10/19/2016	15,000	< 250	160 J	29,000	< 1,300	180 J	< 2,500	< 2,500	< 250	< 250	1,100	< 250	< 250	< 1,300	< 1,300	< 2,500	< 250	< 250	< 250	< 250	< 250	42,000	< 250	< 250
	4/24/2017	9,800	< 250	< 250	23,000	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	670	< 250	< 250	< 1,300	< 1,300	< 2,500	< 250	< 250	< 250	< 250	< 250	31,000	< 250	< 250
	11/7/2017	6,800	< 250	< 250	16,000	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	590	< 250	< 250	< 1,300*	< 1,300*	< 2,500	< 250	< 250	< 250	< 250	< 250	17,000	< 250	< 250
	6/5/2018	12,000	< 250	150 J	31,000	< 1,300*	150 J	< 2,500*	< 2,500	< 250	< 250	1,100	< 250	< 250	< 1,300	< 1,300	210 J	< 250	< 250	< 250	< 250	< 250	42,000	< 250	< 250
	12/11/2018	7,900	< 100	110	20,000	< 1,000	100	< 1,000	< 1,000	< 100	< 100	670	< 100	< 100	< 500	< 500	< 1,000	< 100	< 100	< 100	< 100	< 100	25,000	< 100	< 100
	5/30/2019	8,900	< 250	130 J	25,000	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	770	< 250	< 250	< 1,300	< 1,300	< 2,500	< 250	< 250	< 250	< 250	< 250	28,000	< 250	< 250
	10/17/2019	7,000	< 250	98 J	19,000	< 1,300	130 J	< 2,500	< 2,500	< 250	< 250	960	< 250	< 250	< 1,300	< 1,300	< 2,500	< 250	< 250	< 250	< 250	< 250	27,000	< 250	< 250
	6/23/2020	7,300	< 250	100 J	21,000	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	860	< 250	< 250	< 1,300	920 J	< 2,500	< 250	< 250	< 250	< 250	< 250	28,000	< 250	< 250
	11/5/2020	5,600	< 250	< 250	16,000 *	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	580	< 250	< 250	< 1,300	< 1,300	< 2,500	< 250	< 250	< 250	< 250	< 250	20,000	< 250	< 250
	6/29/2021	6,300	< 250	< 250	21,000	< 1,300	94 J	< 2,500	< 2,500	< 250	< 250	710	< 250	< 250	< 1,300	< 1,300	< 1,300	< 250	< 250	< 250	< 250	< 250	29,000	< 250	< 250
	11/18/2021	4,300	< 250	< 250	15,000	< 1,300	< 250	< 2,500	< 2,500	< 250	< 250	420	< 250	< 250	< 1,300	< 1,300	< 1,300	< 130	< 250	< 250	< 250	< 250	17,000	< 250	< 250
	6/7/2022	5,300	16	000	18,000	< 1	75	< 10	< 10	3.5	18	770	< 1	< 1	< 5	< 5	9.7	1.4	5.9	21,000	36	0.33 J	21,000	< 250	< 250
	10/19/2022	5,800	< 200	< 200	24,000	< 1,000	73 J	< 2,000	< 2,000	< 200	740	< 200	< 200	51 J	< 1,000	< 1,000	< 1,000	< 100	< 200	22,000	< 200	< 200	22,000	< 200	< 200
	5/31/2023	7,700	< 1,000	< 1,000	31,000	< 10,000	< 10,000	< 10,000	< 10,000	< 1,000	< 1,000	1,300	< 1,000	< 1,000	< 2,500	850 J	< 1,000	< 1,000	< 1,000	33,000	< 1,000	< 1,000	33,000	< 1,000	< 2,000
	11/7/2023	4,800	< 500	< 500	18,000	< 500	< 500	< 5,000	< 5,000	< 500	< 500	680	< 500	< 500	< 1,300	< 500	< 500	< 500	< 500	19,000	< 500	< 500	19,000	< 500	< 1,000
	6/26/2024	5,000	< 500	< 500	23,000	< 500	< 500	< 5,000	< 5,000	< 500	< 500	960	< 500	< 500	< 1,300	< 500	< 500	< 500	< 500	29,000	< 500	< 500	29,000	< 500	< 1,000
	MW-4A	4/14/2011	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	< 120,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000*	< 25,000	< 50,000	< 5,000	< 5,000	< 5,000	< 5,000	< 5,000	520,000	< 5,000	< 10,000
		10/11/2011	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 13,000	< 500	160 J	< 500	< 500	< 500	< 2,500	< 5,000	< 500	< 500	< 500	< 500	< 500	26,000	< 500	< 1,000
		4/3/2012	< 1,300	< 1,300	< 1,300*	< 1,300	< 1,300	< 1,300	< 13,000	< 31,000	< 1,300	< 1,300	< 1,300	< 1,300	< 1,300	< 6,300	< 13,000	< 1,300	< 1,300	< 1,300*	97,000	< 1,300	< 2,500		
		10/24/2012	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 20,000	< 50,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 10,000	< 2,000	< 2,000	< 2,000	250,000	< 2,000	< 4,000		
10/24/2013		< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 20,000	< 50,000	< 2,000	< 2,000	650 J	< 2,000	< 2,000	< 2,000	< 10,000	< 2,000	< 2,000	< 2,000	360,000	< 2,000	< 4,000			
10/23/2014		< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 20,000	< 20,000	< 2,000	< 2,000	33,000	< 2,000	< 2,000	< 10,000	< 10,000	< 2,000	< 2,000	< 2,000	440 J	< 2,000	< 2,000	230,000	< 2,000	< 4,000
4/15/2015		< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 10,000	< 10,000	< 1,000	< 1,000	9,800	470 J	< 1,000	< 5,000	< 5,000	< 10,000	< 1,000	< 1,000	< 1,000	< 1,000	83,000	< 1,000	< 1,000	
11/11/2015		< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 10,000	< 10,000	< 1,000	< 1,000	92,000	< 1,000	< 1,000	< 5,000	< 5,000	< 10,000	< 1,000	< 1,000	800 J	< 1,000	< 1,000	140,000	< 1,000	< 1,000
4/26/2016		< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 1,000	< 10,000	< 10,000	< 1,000	< 1,000	110,000	< 1,000	< 1,000	< 5,000	< 5,000	< 10,000	< 1,000	< 1,000	1,100	< 1,000	< 1,000	270,000	3,700	< 1,000
10/19/2016		< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 2,000	< 20,000	< 20,000	< 2,000	< 2														

TABLE 10
Groundwater Analytical Results
Historic Detections of Volatile Organic Compounds – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		1,1,1-Trichloroethane (ug/L)	1,1,2-Trichloroethane (ug/L)	1,1-Dichloroethane (ug/L)	1,1-Dichloroethene (ug/L)	1,2,4-Trichlorobenzene (ug/L)	1,2-Dichloroethane (ug/L)	2-Butanone (MEK) (ug/L)	Acetone (ug/L)	Benzene (ug/L)	Chloroform (ug/L)	cis-1,2-Dichloroethene (ug/L)	Cyclohexane (ug/L)	Ethylbenzene (ug/L)	Methyl acetate (ug/L)	Methylene chloride (ug/L)	Methyl-tertiary-butyl ether (ug/L)	Tetrachloroethene (ug/L)	Toluene (ug/L)	trans-1,2-Dichloroethene (ug/L)	Trichloroethene (ug/L)	Vinyl chloride (ug/L)	Xylene (Total) (ug/L)	
		5	NGV	5	5	NGV	0.6	50	50	1	7	5	NGV	NGV	NGV	NGV	NGV	5	NGV	5	5	2	NGV	
MW-21R	4/14/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.63 J	<1	<1	<1	<5	<10	<1	<1	<1	5	<1	<2	
	10/11/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	1.1	<1	<1	<1	<5	<10	<1	<1	0.23 J	6.1	<1	<2	
	4/3/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.59 J	<1	<1	<1	<5	<10	<1	<1	<1	2.3	<1	<2	
	10/24/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.43 J	<1	<1	<1	<5	<10	<1	<1	<1	2.1	<1	<2	
	4/17/2013	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.21 J	<1	<1	<1	<5	<10	<1	<1	<1	1.1	<1	<2	
	10/24/2013	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.61 J	<1	<1	<1	<5	<10	<1	<1	<1	1.9	<1	<2	
	4/30/2014	<1	<1	<1	<1	<1	<1	<10	8.5 J	<1	<1	0.41 J	<1	<1	<1	<5	<10	<1	<1	<1	0.96 J	<1	<2	
	10/23/2014	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	0.86 J	<1	<1	<1	<5	<10	<1	<1	<1	1.1	<1	<2	
	4/15/2015	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	0.79 J	<1	<1	
	11/11/2015	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	1	<1	<1	<1	<5	<10	<1	<1	<1	1.8	<1	<1	
	4/26/2016	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	0.5 J	<1	<1	<1	<5	<10	<1	<1	<1	1.5	<1	<1	
	10/19/2016	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	0.61 J	<1	<1	<1	<5	<10	<1	<1	<1	1.6	<1	<1	
	4/24/2017	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	0.75 J	<1	<1	<1	<5	<10	<1	<1	<1	3.7	<1	<1	
	11/7/2017	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	3.5	<1	<1	<1	<5	<5*	<10	<1	<1	3.7	<1	<1	
	6/5/2018	<1	<1	<1	<1	<1	<1	<10*	<10	<1	<1	2	<1	<1	<1	<5	<10	<1	<1	<1	3.6	<1	<1	
	12/11/2018	<1	<1	<1	<1	<1	<1	<10	8.9 J	<1	<1	2.8	<1	<1	<1	<5	<10	<1	<1	<1	0.39 J	4.8	<1	<1
	5/30/2019	<1	<1	<1	<1	<1	<1	<10*	<10	<1	<1	1.8	<1	<1	<1	<5	<10	<1	<1	<1	3.4	<1	<1	
	10/17/2019	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	2.2	<1	<1	<1	<5	<10	<1	<1	<1	2.9	<1	<1	
	6/23/2020	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	6.5	<1	<1	<1	<5	<10	<1	<1	<1	0.82 J	<1	<1	
	11/4/2020	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	6.5	<1*	<1	<1	<5	<10	<1	<1	<1	0.91 J	<1	<1	
6/30/2021	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	6.2	<1	<1	<1	<5	<10	<1	<1	<1	1.1	<1	<1		
11/18/2021	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	1.7	<1	<1	<1	<5	<5	<5	<5	<5	11	<1	0.91 J	<1	
Well Abandoned																								
MW-22D	4/14/2011	<1	<1	<1	0.2 J	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	1	<1	<2	
	10/11/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	4/4/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	10/24/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	0.14 J	<1	<2	
	10/23/2013	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	4/30/2014	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.27 B J	<1	<1	<1	<5	<10	<1	<1	<1	0.27 J	<1	<2	
	10/23/2014	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	0.27 J	<1	<2	
	4/15/2015	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
	11/5/2020	<1	<1	<1	<1	<1	<1	<10*	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
	6/30/2021	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
	11/18/2021	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
	6/8/2022	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
	10/19/2022	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
	6/1/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<2
	11/8/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<2
	6/26/2024	<1	<1	<1	3.7	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	12	<1	<2
	MW-22R	4/14/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2
		10/11/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2
		4/4/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2
		10/24/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2
10/23/2013		<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
4/30/2014		<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	0.2 B J	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
10/23/2014		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
4/15/2015		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
11/11/2015		3.3	<1	<1	<1	9.5	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	29	<1	<1	
4/26/2016		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
10/19/2016		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
4/24/2017		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
4/24/2017		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	
11/7/2017		<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<										

TABLE 10
Groundwater Analytical Results
Historic Detections of Volatile Organic Compounds – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		1,1,1-Trichloroethane (ug/L)	1,1,2-Trichloroethane (ug/L)	1,1-Dichloroethane (ug/L)	1,1-Dichloroethene (ug/L)	1,2,4-Trichlorobenzene (ug/L)	1,2-Dichloroethane (ug/L)	2-Butanone (MEK) (ug/L)	Acetone (ug/L)	Benzene (ug/L)	Chloroform (ug/L)	cis-1,2-Dichloroethene (ug/L)	Cyclohexane (ug/L)	Ethylbenzene (ug/L)	Methyl acetate (ug/L)	Methylene chloride (ug/L)	Methyl-tertiary-butyl ether (ug/L)	Tetrachloroethene (ug/L)	Toluene (ug/L)	trans-1,2-Dichloroethene (ug/L)	Trichloroethene (ug/L)	Vinyl chloride (ug/L)	Xylene (Total) (ug/L)	
NYSDEC CLASS GA GW STANDARD		5	NGV	5	5	NGV	0.6	50	50	1	7	5	NGV	NGV	NGV	NGV	5	NGV	5	5	2	NGV		
MW-255	4/14/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<2		
	10/11/2011	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	0.67 J	<1	<2	
	4/4/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	10/24/2012	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	4/17/2013	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	10/23/2013	<1	<1	<1	<1	<1	<1	<10	<25	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<2	
	4/30/2014	<1	<1	<1	<1	<1	<1	<10	<25	<1	0.28 B1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	0.16 J	<1	<2
	10/23/2014	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	<2
	4/15/2015	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<5	<10	<1	<1	<1	<1	<1	<1	<2
	11/11/2015	3.7	<1	<1	9.7	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	39	<1	<1
	4/26/2016	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<1	<1	<2
	10/19/2016	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	0.75 J	<1	<1
	4/24/2017	1.3	<1	<1	1.9	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	5.9	<1	<1
	8/16/2017	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<1	<1	<1
	11/7/2017	<1	<1	<1	<1	<5	<1	<10*	<10	<1	<1	0.89 J	<1	<1	<5	<5	<10	<1	<1	<1	0.44 J	<1	<1	<1
	6/5/2018	<1	<1	<1	<1	<5*	<1	<10*	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	2.6	<1	<1
	12/12/2018	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1*	<1	<1	<1	<1	<1	<1
	5/30/2019	<1	<1	<1	<1	<5	<1	<10*	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<1	<1	<1
	10/17/2019	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<1	<1	<1
	6/24/2020	<1	<1*	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<1	<1	<1	<1	<1	<1	<1
	11/5/2020	<1	<1	<1	<1	<5	<1	<10*	<10	<1	<1	<1	<1*	<1	<5	<5	<10	<1	<1	<1	<1	0.53 JB	<1	<1
	6/30/2021	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<0.5	<1	<1	<1	<1	<1	<1
	11/18/2021	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<0.5	<1	<1	<1	<1	<1	<1
6/8/2022	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<0.5	<1	<1	<1	<1	<1	<1	
10/20/2022	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<1	<5	<5	<10	<0.5	<1	<1	<1	<1	<1	<1	
6/1/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	
11/8/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	
6/26/2024	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	
MW-27R	6/8/2022	<1	<1	<1	<1	<5	<1	<10	<10	<1	11	<1	<1	<5	<5	<10	<0.5	0.89 J	<1	<1	<1	<1	<1	
	10/19/2022	<1	<1	<1	<1	1.9 JB	<1	<10	<10	<1	5.9	<1	<1	<5	<5	<10	<0.5	0.66 J	<1	<1	<1	<1	<1	
	6/1/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	2.2	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	11/7/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	0.89 J	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	7.3	<1	
6/25/2024	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1		
MW-28R	6/8/2022	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<5	<5	<10	<0.5	<1	<1	<1	<1	<1	<1	
	10/20/2022	<1	<1	<1	<1	<5	<1	<10	<10	<1	<1	<1	<1	<5	<5	<10	<0.5	<1	<1	<1	<1	<1	<1	
	6/1/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	11/8/2023	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	
6/26/2024	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<2.5	<1	<1	<1	<1	<1	<1	<1	<1	<1		

Notes:
ug/L = micrograms per liter
Result cells highlighted grey and bolded exceed NYSDEC Class GA Groundwater Standard.
Analytes not detected are not included on this table.
< - Indicates the analyte was analyzed for but not detected at the noted reporting limit.
J - The result is less than the reporting limit (RL) but greater or equal to the method detection limit (MDL) and the concentration is an approximate value.
B - Compound was found in the blank sample.
* - RPD of the LCS and LCS0 exceeds the control limits.
E - Result exceeded calibration range
H - Sample was prepreg or analyzed beyond the specified holding time
F1 - MS and/or MSD Recovery is outside acceptable limits.
F2 - MS/MSD RPD exceeds control limits.

TABLE 11A
Groundwater and Surface Water Analytical Results
Historic Detections of Dissolved Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																							
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
		(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	
	FRACTION	3	3	25	1,000	3	5	NGV	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	0.5	NGV	2,000		
	NYSDEC CLASS GA GW STANDARD	NGV	3	25	1,000	3	5	NGV	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	0.5	NGV	2,000		
MW-2B	4/14/2011	< 200	< 20	< 20	47	< 4	< 5	75,000	< 10	< 10	< 20	< 50	< 10	8,100	< 10	< 0.2	< 40	940 J	42	< 10	5,600	< 25	< 10	< 20	
	10/10/2011	< 200	< 20	< 20	63	< 4	< 5	88,000	< 10	< 10	< 20	< 50	< 10	8,900	24	< 0.2	< 40	1,600	320	< 10	6,200	< 25	< 10	< 20	
	4/3/2012	< 200	< 20	< 20	39	< 4	< 5	90,000	< 10	< 10	< 20	24 J	< 10	11,000	8.3 J	< 0.2	< 40	1,600	17 J	< 10	6,300	< 25	< 10	< 20	
	10/24/2012	< 200	< 20	< 20	84	< 4	< 5	55,000	< 10	< 10	< 20	< 50	< 10	7,700	< 10	< 0.2	< 40	2,000	290	< 10	7,900	< 25	< 10	< 20	
	4/18/2013	< 200	< 20	< 20	35	< 4	< 5	73,000	< 10	< 10	< 20	< 50	< 10	7,900	< 10	< 0.2	< 40	990 J	30	< 10	5,400	< 25	< 10	< 20	
	11/8/2013	< 200	< 20	< 20	42	< 4	< 5	59,000	< 10	< 10	< 20	< 50	< 10	7,400	< 10	< 0.2	< 40	1,400	780	< 10	7,500	< 25	< 10	< 20	
	4/30/2014	< 200	< 20	< 20	30	< 4	< 5	66,000	< 10	< 10	< 20	< 50	< 10	6,500	< 10	< 0.2	< 40	870 J	29	< 10	4,700	< 25	< 10	< 20	
	10/23/2014	< 200	< 20	< 20	61	< 4	< 5	60,000	< 10	< 10	< 20	< 50	< 10	8,300	< 10	< 0.2	< 40	2,000	670	< 10	7,900	< 25	< 10	< 20	
	4/15/2015	< 200	< 20	< 20	31	< 4	< 5	69,000	< 10	< 10	< 20	< 50	< 10	8,400	< 10	< 0.2	< 40	990 J	18 J	< 10	5,000	< 25	< 10	< 20	
	11/11/2015	< 200	< 20	< 20	66	< 4	< 5	55,000	< 10	< 10	< 20	< 50	< 10	7,200	< 10	< 0.2	< 40	1,800	1,000	< 10	7,000	< 25	< 10	< 20	
	4/26/2016	< 200	< 20	< 20	37	< 4	< 5	90,000	< 10	< 10	< 20	< 50	< 10	11,000	1.3 J	< 0.2	2.5 J	990 J	20	< 10	6,500	< 25	< 10	< 20	
	10/19/2016	< 200	< 20	< 20	77	< 4	< 5	72,000	< 10	< 10	3.8 J	< 50	< 10	10,000	1.1 J	< 0.2	2.2 J	2,200	570	< 10	8,000	< 25	< 10	7.9 J	
	4/24/2017	< 200	< 20	< 20	30	< 4	< 5	72,000	< 10	< 10	< 20	< 50	< 10	7,300	< 10	< 0.2	< 40	800 J	21	< 10	5,000	< 25	< 10	< 20	
	11/7/2017	< 200	< 20	< 15	83	< 2	< 2	65,000	< 4	< 4	< 10	< 50	< 10	9,300	< 3	< 0.2	< 10	1,900	650	< 6	6,900	< 20	< 5	< 10	
	6/5/2018	< 200	< 20	< 20	37	< 4	< 5	89,000	< 10	< 10	2 J	< 50	< 10	10,000	< 10	< 0.2	4.2 J	970 J	28	< 10	6,200	< 25	< 10	< 20	
	5/30/2019	24 JB	< 200	< 20	< 20	28	< 4	< 5	88,000	< 10	< 10	< 20	< 50	< 10	8,900	1.1 J	< 0.2	< 40	830 J	< 20	< 10	6,000	< 25	< 10	71
	10/17/2019	< 200	< 20	< 20	50	< 4	< 5	62,000	< 10	< 10	3.5 J	< 50	< 10	8,400	7.6 J	< 0.2	< 40	1,900	580	< 10	5,900	< 25	< 10	< 20	
	6/23/2020	< 200	< 20	< 20	21	< 4	< 5	76,000	< 10	< 10	< 20	< 50	< 10	8,800	220	< 0.2	< 40	850 J	180	< 10	5,600	< 25	1.7 J	< 20	
	11/4/2020	< 200	< 20	5.7 JB	48	< 4	< 5	65,000	< 10	< 10	2.9 J	830	< 10	9,300	4.6 J	< 0.2	2.4 J	2,000	530	< 10	6,300	< 25	< 10	< 20	
	6/30/2021	< 200	< 20	< 20	66	< 4	< 5	75,000	< 10	< 10	< 20	< 50	< 10	21,000	210	< 0.2	< 40	1,400	< 20	< 10	9,800	< 25	1.2 J	< 20	
	11/16/2021	68 J	< 200	< 20	32	< 4	< 5	90,000	< 10	1.3 JB	< 20	70	< 10	10,000	< 10	< 0.2	< 40	1,000	31	< 10	5,900	< 25	< 10	< 20	
	6/8/2022	< 200	< 20	< 20	32	< 4	< 5	95,000	< 10	< 10	< 20	< 100	< 10	12,000	< 10	< 0.2	< 40	1,100 B	19 J	< 10	6,300	< 25	< 10	< 20	
	10/20/2022	< 200	< 20	< 20	33	< 4	< 5	59,000	< 10	< 10	< 20	< 100	< 10	8,100	< 10	< 0.2	< 40	1,500 B	590	< 10	5,700	< 25	< 10	< 20	
	6/1/2023	< 200	< 20	< 15	35	< 2	< 2	100,000	< 4	< 4	7.3 J	< 50	< 10	12,000	< 3	< 0.2	< 10	960	19 J	< 6	6,800	< 20	< 5	< 10	
	11/8/2023	< 200	< 20	< 15	38	< 2	< 2	98,000	1.5 J	< 4	2.5 J	< 50	< 10	10,000	1.2 J	< 0.2	< 10	1,000 B	56	1.9 J	6,100	< 20	< 5	2.6 J	
	6/25/2024	< 200	< 20	< 15	29	< 2	< 2	83,000	< 4	< 4	< 10	< 50	< 10	10,000	25	< 0.2	2 JB	780	110	< 6	6,000	< 20	< 5	2.2 JB	
4/13/2011	< 200	< 20	< 20	120	< 4	< 5	63,000	2.5 J	< 10	< 20	< 50	< 10	320 J	< 10	< 0.2	< 40	4,900	140	< 10	12,000	< 25	< 10	< 20		
10/10/2011	< 200	< 20	< 20	100	< 4	< 5	34,000	< 10	< 10	< 20	< 50	< 10	2,100	< 10	< 0.2	< 40	5,100	260	< 10	9,500	< 25	< 10	< 20		
4/3/2012	< 200	< 20	8 J	99	< 4	< 5	51,000	< 10	< 10	< 20	< 50	< 10	5,800	< 10	< 0.2	< 40	4,800	370	< 10	9,400	< 25	< 10	< 20		
10/24/2012	< 200	< 20	< 20	100	< 4	< 5	31,000	< 10	< 10	< 20	< 50	< 10	4,700	< 10	< 0.2	< 40	5,300	230	< 10	7,700	< 25	< 10	< 20		
4/18/2013	< 200	< 20	< 20	100	< 4	< 5	43,000	2.2 J	< 10	< 20	< 50	< 10	2,100	< 10	< 0.2	< 40	4,900	180	< 10	9,700	< 25	< 10	< 20		
11/8/2013	< 200	< 20	< 20	99	< 4	< 5	47,000	< 10	< 10	< 20	< 50	< 10	12,000	6.5 J	< 0.2	< 40	4,100	370	< 10	8,300	< 25	< 10	< 20		
4/30/2014	< 200	< 20	< 20	140	< 4	< 5	54,000	< 10	< 10	< 20	82	< 10	9,000	16	< 0.2	< 40	4,600	370	< 10	8,000	< 25	< 10	< 20		
10/23/2014	< 200	< 20	< 20	100	< 4	< 5	41,000	< 10	< 10	< 20	< 50	< 10	8,000	5.4 J	< 0.2	< 40	4,600	350	< 10	8,300	< 25	< 10	< 20		
4/15/2015	< 200	< 20	< 20	100	< 4	< 5	44,000	< 10	< 10	< 20	32 J	< 10	7,200	9 J	< 0.2	< 40	4,300	330	< 10	8,100	< 25	< 10	< 20		
11/11/2015	< 200	< 20	< 20	85	< 4	< 5	57,000	< 10	< 10	< 20	< 50	< 10	9,800	11	< 0.2	< 40	3,300	460	< 10	7,200	< 25	< 10	< 20		
4/26/2016	< 200	< 20	< 20	100	< 4	< 5	47,000	< 10	< 10	< 20	< 50	< 10	7,600	5.3 J	< 0.2	3.8 J	4,300	370 F1	< 10	7,900	< 25	< 10	< 20		
10/19/2016	< 200	< 20	< 20	100	< 4	< 5	47,000	< 10	< 10	< 20	< 50	< 10	8,500	7.2 J	< 0.2	< 40	4,400	370 F1	< 10	7,400	< 25	< 10	< 20		
4/24/2017	< 200	< 20	< 20	120	< 4	< 5	55,000	< 10	< 10	< 20	< 50	< 10	10,000	9.9 J	< 0.2	< 40	4,600	410	< 10	7,100	< 25	< 10	< 20		
11/7/2017	< 200	< 20	< 15	110	< 2	< 2	51,000	< 4	< 4	< 10	< 20	< 50 F2	< 10	11,000	10	< 0.2	< 40	4,800	440	< 10	7,400	< 25	< 10	< 20	
6/5/2018	< 200	< 20	< 15	110	< 2	< 2	39,000 F1	< 4	< 4	< 10	< 50	< 10	12,000	5.7	< 0.2	< 10	4,400	370	< 6	7,400	< 20	< 5	< 10		
12/11/2018	< 200	< 20	< 20	98	< 4	< 5	44,000	< 10	< 10	< 20	< 50	< 10	11,000	7.2 J	< 0.2										

TABLE 11A
Groundwater and Surface Water Analytical Results
Historic Detections of Dissolved Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																							
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
		(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	
	FRACTION	3	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000		
	NYSDEC CLASS GA GW STANDARD	NGV	NGV	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000		
MW-155	4/13/2011	<200	<20	<20	20	<4	<5	64,000	<10	<10	<20	<50	<10	18,000	<10	<0.2	<40	290 J	9.2 J	<10	66,000	<25	<10	<20	
	10/10/2011	<200	<20	<20	23	<4	<5	70,000	<10	<10	<20	59	<10	18,000	59	<0.2	<40	330 J	9 J	<10	68,000	<25	<10	7.4 J	
	4/3/2012	<200	7.8 J	<20	20	<4	<5	63,000	<10	<10	<20	<50	<10	18,000	<10	<0.2	<40	280 J	<20	<10	70,000	9.7 J	<10	<20	
	10/24/2012	<200	<20	<20	19	<4	<5	64,000	<10	<10	<20	<50	<10	18,000	17	<0.2	<40	280 J	38	<10	62,000	<25	<10	<20	
	4/18/2013	<200	<20	<20	17	<4	<5	65,000	<10	<10	<20	<50	<10	19,000	<10	<0.2	<40	200 J	<20	<10	63,000	<25	<10	<20	
	11/8/2013	<200	<20	<20	22	<4	<5	73,000	<10	<10	<20	<50	<10	19,000	26	<0.2	<40	350 J	8.1 J	<10	51,000	<25	<10	<20	
	4/30/2014	<200	<20	<20	20	<4	<5	67,000	<10	<10	<20	<50	<10	19,000	8.4 J	<0.2	<40	270 J	<20	<10	60,000	<25	<10	<20	
	10/23/2014	<200	<20	<20	15	<4	<5	61,000	<10	<10	<20	<50	<10	15,000	<10	<0.2	<40	460 J	360	<10	20,000	<25	<10	<20	
	4/15/2015	<200	<20	<20	14	<4	<5	69,000	<10	<10	<20	<50	<10	19,000	82	<0.2	<40	210 J	12 J	<10	47,000	<25	<10	<20	
	11/11/2015	<200	<20	<20	16	<4	<5	75,000	<10	<10	<20	<50	<10	19,000	<10	<0.2	<40	350 J	30	<10	45,000	<25	<10	<20	
	4/26/2016	<200	<20	<20	18	<4	<5	72,000	<10	<10	<20	<50	<10	20,000	1.1 J	<0.2	<40	3 J	220 J	<20	<10	45,000	<25	<10	<20
	10/19/2016	<200	<20	<20	15	<4	<5	63,000	<10	<10	<20	<50	<10	14,000	31	<0.2	<40	520 J	420	<10	15,000	<25	<10	<20	
	4/24/2017	<200	<20	<20	22	<4	<5	69,000	<10	<10	<20	<50	<10	18,000	11	<0.2	<40	340 J	83	<10	31,000	<25	<10	<20	
	11/7/2017	<200	<20	<15	20	<2	<2	71,000	39	<4	<10	130	<10	19,000	0.86 J	<0.2	13	290 J	88	<6	31,000	<20	<5	<10	
	6/5/2018	<200	<20	<20	18	<4	<5	80,000	<10	<10	<20	<50	<10	21,000	<10	<0.2	4.4 J	240 J	25	<10	41,000	<25	<10	<20	
	12/11/2018	<200	<20	<20	15	<4	<5	72,000	<10	<10	<20	<50	<10	19,000	3.5 J	<0.2	<40	220 J	39	<10	36,000	<25	<10	<20	
	5/30/2019	25 JB	<20	<20	12	<4	<5	67,000	<10	<10	1.8 J	<50	4.1 JB	19,000	4.2 J	<0.2	<40	160 J	50	<10	43,000	<25	<10	58	
	10/17/2019	<200	<20	<20	25	<4	<5	70,000	<10	<10	4 J	<50	<10	18,000	1.1 J	<0.2	<40	320 J	200	<10	26,000	<25	1.3 J	<20	
	6/23/2020	<200	<20	<20	12	<4	<5	75,000	<10	<10	<20	<50	<10	20,000	11	<0.2	<40	290 J	110	<10	28,000	<25	1.3 J	<20	
	11/4/2020	<200	<20	<20	17	0.12 J	<5	79,000	<10	<10	<20	520	<10	21,000	6 J	<0.2	<40	220 J	42	<10	32,000	<25	<10	38	
	6/30/2021	<200	<20	<20	20	<4	<5	71,000	<10	<10	<20	<50	5.1 J	18,000	19	<0.2	2.7 J	220 J	19 J	<10	25,000	<25	1.1 J	<20	
	11/18/2021	<200	<20	<20	14	<4	<5	76,000	<10	<10	<20	<50	<10	20,000	39	<0.2	<40	210 J	<20	<10	33,000	<25	<10	<20	
	6/7/2022	<200	<20	<20	17	<4	<5	75,000	<10	<10	<20	<100	<10	20,000	2.6 J	<0.2	<40	290 J	<20	<10	31,000	<25	<10	<20	
	10/20/2022	<200	<20	<20	18	<4	<5	71,000	<10	<10	<20	<100	<10	17,000	<10	<0.2	<40	250 JB	130	<10	22,000	<25	<10	<20	
11/7/2023	<200	<20	<15	20	<2	<2	81,000	<4	<4	3.1 J	<50	<10	19,000	1.6 J	<0.2	<10	260 J	<25	<6	33,000	<20	<5	<10		
6/26/2024	<200	<20	<15	20	<2	<2	79,000	<4	<4	<10	<50	<10	20,000	15	<0.2	<10	140 J	<25	<6	33,000	<20	<5	<10		
MW-165	4/13/2011	<200	<20	<20	110	<4	<5	80,000	<10	<10	<20	<50	<10	23,000	21	<0.2	<40	870 J	<20	<10	18,000	<25	<10	6.7 J	
	10/10/2011	<200	<20	<20	110	<4	<5	92,000	<10	<10	<20	110	<10	24,000	180	<0.2	<40	1,000	<20	<10	19,000	<25	<10	7.8 J	
	4/3/2012	<200	11 J	<20	110	<4	<5	77,000	<10	<10	<20	35 J	<10	23,000	32	<0.2	<40	900 J	<20	<10	18,000	11 J	<10	<20	
	10/24/2012	<200	<20	<20	80	<4	<5	76,000	<10	<10	<20	<50	<10	22,000	12	<0.2	<40	1,000	<20	<10	18,000	<25	<10	<20	
	4/17/2013	<200	<20	<20	110	<4	<5	78,000	<10	<10	<20	370	<10	23,000	130	<0.2	<40	890 J	<20	<10	18,000	<25	<10	<20	
	11/8/2013	<200	<20	<20	140	<4	<5	78,000	<10	<10	<20	1,600	<10	23,000	440	<0.2	<40	870 J	<20	<10	18,000	<25	<10	<20	
	4/30/2014	<200	<20	<20	110	<4	<5	81,000	<10	<10	<20	24 J	<10	24,000	11	<0.2	<40	920 J	<20	<10	19,000	<25	<10	<20	
	10/23/2014	<200	<20	<20	120	<4	<5	78,000	<10	<10	1.2 J	<20	92	4 J	23,000	400	<0.2	<40	1,000	<20	<10	19,000	<25	<10	<20
	4/15/2015	<200	<20	<20	110	<4	<5	85,000	<10	<10	<20	58	<10	24,000	46	<0.2	<40	980 J	<20	<10	19,000	<25	<10	<20	
	11/11/2015	<200	<20	<20	120	<4	<5	85,000	<10	<10	<20	1,000	<10	24,000	360	<0.2	2.1 J	950 J	<20	<10	19,000	<25	<10	<20	
	4/26/2016	<200	<20	<20	100	<4	<5	83,000	<10	<10	<20	35 J	<10	24,000	30	<0.2	4.7 J	910 J	<20	<10	20,000	<25	<10	<20	
	10/19/2016	<200	<20	9.2 J	120	<4	<5	79,000	<10	<10	<20	610	<10	23,000	440	<0.2	3.1 J	980 J	<20	<10	18,000	<25	<10	<20	
	4/24/2017	<200	<20	<20	100	<4	<5	81,000	<10	<10	<20	<50	<10	22,000	6.2 J	<0.2	<40	1,000	<20	<10	19,000	<25	<10	<20	
	11/7/2017	<200	<20	<15	140	<2	0.54 J	84,000	<4	<4	<10	130	<10	25,000	160	<0.2	<10	1,000	<25	<6	19,000	<20	<5	1.5 J	
	6/5/2018	<200	<20	<20	90	<4	<5	81,000	<10	<10	2.7 J	<50	<10	23,000	5.6 J	<0.2	4.3 J	880 J	<20	<10	18,000	<25	<10	<20	
	12/11/2018	<200	<20	<20	95	<4	<5	82,000	<10	<10	<20	160	<10	24,000	88	<0.2	<40	920 J	<20	<10	18,000	<25	<10	<20	
	5/30/2019	29 JB	<20	<20	86	<4	<5	72,000	<10	<10	<20	47 J	<10	21,000	28	<0.2	<40	840 J	<20	<10	19,000	<25	<10	70	
	10/17/2019	<200	<20	11 J	130	<4	<5	79,000	<10	<10	1.9 J	790	<10	23,000	340	<0.2	<40	880 J	<20	<10	16,000	<25	1.1 J	<20	
	6/24/2020</																								

TABLE 11A
Groundwater and Surface Water Analytical Results
Historic Detections of Dissolved Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																							
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
		(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	
	FRACTION	3	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	3	0.5	NGV	2,000	
	NYSDEC CLASS GA GW STANDARD	NGV	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	3	0.5	NGV	2,000	
MW-24D	4/13/2011	<200	<20	<20	74	<4	<5	63,000	<10	<20	<50	<10	12,000	5.5 J	<0.2	<40	1,600	<20	<10	6,500	<25	<10	<20		
	10/11/2011	<200	<20	<20	87	<4	<5	73,000	<10	<10	<20	220	<10	13,000	120	<0.2	<40	1,800	<20	<10	6,600	<25	<10	<20	
	4/3/2012	<200	6 J	<20	85	<4	<5	70,000	<10	<10	<20	<50	<10	14,000	<10	<0.2	<40	1,900	<20	<10	7,200	<25	<10	<20	
	10/24/2012	<200	<20	<20	81	<4	<5	68,000	<10	<10	<20	99	<10	14,000	120	<0.2	<40	1,900	<20	<10	6,600	<25	<10	<20	
	4/17/2013	<200	<20	<20	85	<4	<5	70,000	<10	<10	<20	<50	<10	14,000	38	<0.2	<40	1,900	<20	<10	7,300	<25	<10	<20	
	11/8/2013	<200	<20	<20	84	<4	<5	66,000	<10	<10	<20	93	<10	13,000	110	<0.2	5.2 J	1,700	<20	<10	7,200	<25	<10	<20	
	4/30/2014	<200	<20	<20	83	<4	<5	68,000	<10	<10	<20	<50	<10	14,000	88	<0.2	<40	1,900	<20	<10	7,200	<25	<10	<20	
	10/23/2014	<200	<20	<20	89	<4	<5	70,000	<10	<10	<20	130	<10	14,000	130	<0.2	<40	2,000	<20	<10	7,500	<25	<10	<20	
	4/15/2015	<200	<20	<20	81	<4	<5	70,000	<10	<10	<20	<50	<10	14,000	32	<0.2	<40	1,900	<20	<10	7,000	<25	<10	<20	
	11/11/2015	<200	6.3 J	<20	87	<4	<5	70,000	<10	<10	<20	88	<10	13,000	110	<0.2	<40	1,800	<20	<10	7,100	<25	<10	<20	
	4/26/2016	<200	<20	<20	86	<4	<5	72,000	<10	<10	<20	<50	<10	14,000	55	<0.2	4.1 J	1,900	<20	<10	7,300	<25	<10	<20	
	10/19/2016	<200	<20	<20	93	<4	<5	71,000	<10	<10	<20	100	<10	14,000	120	<0.2	<40	2,000	<20	<10	7,100	<25	<10	<20	
	4/24/2017	<200	<20	<20	84	<4	<5	66,000	<10	<10	<20	<50	<10	13,000	78	<0.2	<40	1,800	<20	<10	6,500	<25	<10	<20	
	11/7/2017	<200	<20	<15	91	<2	<2	66,000	<4	<4	<10	110	<10	14,000	110	<0.2	<10	1,700	<25	<6	6,500	<20	<5	1.7 J	
	6/5/2018	<200	<20	<20	84	<4	<5	68,000	<10	<10	2.4 J	21 J	<10	13,000	130	<0.2	3.2 J	1,800	<20	<10	6,700	<25	<10	<20	
	12/12/2018	<200	<20	<20	88	<4	<5	68,000	<10	<10	<20	120	<10	13,000	110	<0.2	<40	1,800	<20	<10	6,300	<25	<10	<20	
	5/30/2019	34 JB	<20	<20	78	<4	<5	61,000	<10	<10	<20	190	<10	12,000	120	<0.2	<40	1,800	<20	0.74 J	7,000	<25	<10	44	
	10/17/2019	<200	<20	<20	97	<4	<5	64,000	<10	<10	<20	78	<10	12,000	110	<0.2	<40	1,700	<20	<10	6,000	<25	1.3 J	<20	
	6/23/2020	31 J	<20	<20	88	<4	<5	69,000	<10	<10	<20	340	<10	13,000	140 B	<0.2	<40	1,900	<20	<10	6,900	<25	<10	<20	
	11/5/2020	<200	<20	<20	89	<4	<5	69,000	<10	<10	<20	280	<10	14,000	110	<0.2	<40	1,700	<20	<10	6,600	<25	<10	<20	
	11/18/2021	42 J	<20	<20	87	<4	<5	64,000	<10	1.4 JB	<20	260	<10	13,000	120	<0.2	<40	1,800	<20	<10	5,900	<25	<10	<20	
	6/8/2022	<200	<20	<20	88	<4	<5	65,000	<10	<10	<20	22 J	<10	13,000	110	<0.2	<40	1,800 B	<20	<10	6,300	<25	<10	<20	
	10/20/2022	<200	<20	<20	89	<4	<5	64,000	<10	<10	<20	86 J	<10	13,000	110	<0.2	<40	1,900 B	<20	<10	6,400	<25	<10	<20	
	6/1/2023	<200	<20	<15	100	<2	<2	74,000	<4	<4	1.6 J	50	<10	14,000	91	<0.2	<10	2,100	<25	<6	7,300	<20	<5	<10	
11/8/2023	<200	<20	<15	93	<2	<2	67,000	1.2 J	<4	1.8 J	68	<10	13,000	100	<0.2	<10	1,800 B	<25	<6	5,900	<20	<5	1.6 J		
6/26/2024	<200	<20	<15	96	<2	<2	66,000	<4	<4	<10	54	<10	13,000	80	<0.2	1.5 JB	1,700	<25	<6	6,400	<20	<5	<10		
MW-24S	4/13/2011	<200	<20	<20	41	<4	<5	72,000	<10	<10	<20	<50	<10	21,000	<10	<0.2	<40	440 J	<20	<10	11,000	<25	<10	<20	
	10/11/2011	<200	<20	<20	42	<4	<5	85,000	<10	<10	<20	150	<10	24,000	79	<0.2	<40	570 J	<20	<10	13,000	<25	<10	<20	
	4/3/2012	<200	<20	<20	33	<4	<5	73,000	<10	<10	<20	<50	<10	23,000	<10	<0.2	<40	450 J	<20	<10	13,000	<25	<10	<20	
	10/24/2012	<200	<20	16 J	78	<4	<5	65,000	<10	<10	<20	690	<10	15,000	180	<0.2	<40	660 J	<20	<10	10,000	<25	<10	<20	
	4/17/2013	<200	<20	<20	40	<4	<5	79,000	<10	<10	<20	<50	<10	24,000	7.3 J	<0.2	<40	460 J	<20	<10	13,000	<25	<10	<20	
	11/8/2013	<200	<20	17 J	69	<4	<5	69,000	<10	<10	<20	750	<10	17,000	200	<0.2	<40	620 J	<20	<10	12,000	<25	<10	<20	
	4/30/2014	<200	<20	<20	38	<4	<5	76,000	<10	<10	<20	<50	<10	25,000	<10	<0.2	<40	650 J	<20	<10	14,000	<25	<10	<20	
	10/23/2014	120 J	<20	19 J	95	<4	<5	69,000	<10	<10	<20	790	<10	16,000	290	<0.2	<40	720 J	<20	<10	12,000	<25	<10	<20	
	4/15/2015	<200	<20	<20	40	<4	<5	75,000	<10	<10	<20	<50	<10	22,000	5.6 J	<0.2	<40	480 J	<20	<10	15,000	<25	<10	<20	
	11/11/2015	<200	<20	12 J	77	<4	<5	65,000	<10	<10	<20	740	<10	14,000	190	<0.2	<40	630 J	<20	<10	12,000	<25	<10	<20	
	4/26/2016	<200	<20	<20	42	<4	<5	78,000	<10	<10	<20	<50	<10	24,000	1.3 J	<0.2	5.1 J	460 J	<20	<10	16,000	<25	<10	<20	
	10/19/2016	<200	<20	23	79	<4	<5	62,000	<10	<10	<20	580	<10	14,000	170	<0.2	<40	660 J	<20	<10	11,000	<25	<10	<20	
	4/24/2017	<200	<20	<20	47	<4	<5	68,000	<10	<10	<20	<50	<10	19,000	1.7 J	<0.2	2.1 J	510 J	<20	<10	15,000	<25	<10	<20	
	11/7/2017	<200	<20	26	84	<2	<2	58,000	<4	<4	<10	540	<10	12,000	350	<0.2	<10	610	<25	<6	11,000	<20	<5	<10	
	6/5/2018	<200	<20	8.7 J	58	<4	<5	72,000	<10	<10	3 J	69	<10	20,000	380	<0.2	5.6 J	530 J	<20	<10	14,000	<25	<10	<20	
	12/12/2018	<200	<20	<20	36	<4	<5	81,000	<10	<10	<20	<50	<10	24,000	8.3 J	<0.2	<40	550 J	<20	<10	15,000	<25	<10	<20	
	5/30/2019	47 JB	<20	<20	25	<4	<5	74,000	<10	<10	<20	72	<10	25,000	14	0.089 J	<40	400 J	<20	<10	0.67 J	15,000	<25	<10	52
	10/17/2019	<200	<20	17 J	81	<4	<5	73,000	<10	<10	<20	1,100	<10	19,000	240	<0.2	<40	610 J	<20	<10	12,000	<25	1.7 J	<20	
	6/24/2020	26 J	<20	<																					

TABLE 11A
Groundwater and Surface Water Analytical Results
Historic Detections of Dissolved Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
		(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved	(ug/L) Dissolved
	FRACTION	3	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000	
	NYSDEC CLASS GA GW STANDARD	NGV	NGV	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000	
MW-260	4/13/2011	<200	<20	18 J	51	<4	<5	37,000	<10	<20	27 J	<10	<5	6,000	<10	<0.2	<40	700 J	<20	<10	17,000	<25	<10	7.3 J
	10/11/2011	<200	<20	20	48	<4	<5	40,000	<10	<10	<20	<50	<10	6,100	<10	<0.2	<40	720 J	<20	<10	17,000	<25	<10	6.8 J
	4/3/2012	<200	6.2 J	20	52	<4	<5	39,000	<10	<10	<20	<50	<10	6,500	<10	<0.2	<40	740 J	<20	<10	19,000	<25	<10	<20
	10/24/2012	<200	<20	20	43	<4	<5	36,000	<10	<10	<20	<50	<10	6,000	<10	<0.2	<40	730 J	<20	<10	17,000	<25	<10	<20
	4/17/2013	<200	<20	24	52	<4	<5	41,000	<10	<10	<20	<50	<10	6,800	120	<0.2	<40	710 J	<20	<10	16,000	<25	<10	<20
	11/8/2013	<200	<20	20	51	<4	<5	44,000	<10	<10	<20	<50	<10	7,400	160	<0.2	<40	700 J	<20	<10	11,000	<25	<10	<20
	4/30/2014	<200	<20	17 J	53	<4	<5	42,000	<10	<10	<20	27 J	<10	7,100	10	<0.2	<40	770 J	<20	<10	13,000	<25	<10	<20
	10/23/2014	<200	<20	18 J	51	<4	<5	42,000	<10	<10	<20	<50	<10	7,000	<10	<0.2	<40	730 J	<20	<10	13,000	<25	<10	<20
	4/15/2015	<200	<20	23	52	<4	<5	43,000	<10	<10	<20	<50	<10	6,900	<10	<0.2	<40	730 J	<20	<10	11,000	<25	<10	<20
	11/11/2015	<200	<20	18 J	51	<4	<5	44,000	<10	<10	<20	<50	<10	7,000	36	<0.2	<40	680 J	<20	<10	11,000	<25	<10	<20
	4/26/2016	<200	<20	24	52	<4	<5	45,000	<10	<10	<20	<50	<10	7,400	4.7 J	<0.2	2.9 J	710 J	<20	<10	11,000	<25	<10	<20
	10/19/2016	<200	<20	27	49	<4	<5	44,000	<10	<10	1.8 J	<50	<10	7,200	<10	<0.2	<40	760 J	<20	<10	12,000	<25	<10	<20
	4/24/2017	<200	<20	26	49	<4	<5	43,000	<10	<10	<20	<50	<10	7,300	<10	<0.2	<40	720 J	<20	<10	11,000	<25	<10	<20
	11/7/2017	<200	<20	21	52	<2	<2	43,000	<4	<4	<10	<50	<10	7,300	<3	<0.2	<10	660	<25	<6	11,000	<20	<5	<10
	6/5/2018	<200	<20	28	49	<4	<5	45,000	<10	<10	3.5 J	<50	<10	7,300	7.9 J	<0.2	4.6 J	720 J	<20	<10	11,000	<25	<10	<20
	12/12/2018	<200	<20	23	49	<4	<5	48,000	<10	<10	<20	18 J	<10	8,100	2.2 J	<0.2	<40	720 J	<20	<10	11,000	<25	<10	<20
	5/30/2019	<200	<20	13 J	47	<4	<5	42,000	<10	<10	<20	<50	<10	7,200	47	<0.2	<40	710 J	<20	<10	10,000	<25	<10	6.2
	10/17/2019	<200	<20	23	60	<4	<5	43,000	<10	<10	3.4 J	<50	<10	6,900	120	<0.2	<40	640 J	<20	<10	8,300	<25	<10	<20
	6/23/2020	<200	<20	21	44	<4	<5	43,000	<10	<10	<20	<50	<10	7,100	4.7 J	<0.2	<40	670 J	<20	<10	8,600	<25	1.1 J	<20
	11/5/2020	<200	<20	34	49	<4	<5	45,000	<10	<10	<20	360	<10	7,400	45	<0.2	<40	620 J	<20	<10	9,100	<25	<10	<20
	11/18/2021	<200	<20	11 J	52	<4	<5	52,000	<10	1.4 JB	<20	42 J	<10	9,200	100	<0.2	<40	1,000	<20	<10	7,400	<25	<10	<20
	6/8/2022	<200	<20	22	57	<4	<5	47,000	<10	<10	<20	<100	<10	7,600	<10	<0.2	<40	860 JB	<20	<10	8,700	<25	<10	<20
	10/20/2022	<200	<20	21	54	<4	<5	45,000	<10	<10	14 J	<100	<10	7,400	<10	<0.2	<40	830 JB	<20	<10	8,900	<25	<10	8.9 J
	6/1/2023	<200	<20	28	63	<2	<2	53,000	<4	<4	<10	<50	<10	8,400	0.99 J	<0.2	<10	820	<25	<6	10,000	<20	<5	<10
	11/8/2023	<200	<20	26	57	<2	<2	46,000	<4	<4	1.9 J	<50	3.1 J	7,100	<3	<0.2	<10	680 B	<25	<6	8,000	<20	<5	2.7 J
	6/26/2024	<200	<20	26	55	<2	<2	45,000	<4	<4	<10	<50	<10	7,100	7	<0.2	2.3 JB	590	<25	<6	8,600	<20	<5	1.5 JB
MW-265	4/13/2011	<200	<20	<20	50	<4	<5	70,000	<10	<10	<20	<50	<10	27,000	<10	<0.2	<40	660 J	<20	<10	29,000	<25	<10	<20
	10/11/2011	<200	<20	<20	24	<4	<5	66,000	<10	<10	<20	<50	<10	23,000	5.6 J	<0.2	<40	560 J	<20	<10	27,000	<25	<10	<20
	4/3/2012	<200	<20	<20	34	<4	<5	58,000	<10	<10	<20	30 J	<10	22,000	9.8 J	<0.2	<40	510 J	<20	<10	28,000	<25	<10	<20
	10/24/2012	<200	<20	<20	24	<4	<5	62,000	<10	<10	<20	<50	<10	25,000	<10	<0.2	<40	650 J	<20	<10	25,000	<25	<10	<20
	4/17/2013	<200	<20	<20	29	<4	<5	61,000	<10	<10	<20	<50	<10	24,000	<10	<0.2	<40	510 J	<20	<10	26,000	<25	<10	<20
	11/8/2013	<200	<20	<20	33	<4	<5	63,000	<10	<10	<20	<50	<10	25,000	<10	<0.2	4 J	620 J	<20	<10	29,000	<25	<10	<20
	4/30/2014	<200	<20	<20	34	<4	<5	56,000	<10	<10	<20	<50	<10	22,000	<10	<0.2	<40	530 J	<20	<10	26,000	<25	<10	<20
	10/23/2014	<200	<20	<20	56	<4	<5	58,000	<10	<10	<20	<50	3.4 J	22,000	91	<0.2	<40	740 J	<20	<10	27,000	<25	<10	<20
	4/15/2015	<200	<20	<20	27	<4	<5	59,000	<10	<10	<20	<50	<10	22,000	13	<0.2	<40	530 J	<20	<10	24,000	<25	<10	<20
	11/11/2015	<200	<20	<20	20	<4	<5	56,000	<10	<10	<20	<50	<10	20,000	7.9 J	<0.2	<40	530 J	<20	<10	25,000	<25	<10	<20
	4/26/2016	<200	<20	<20	32	<4	<5	64,000	<10	<10	<20	<50	<10	25,000	<10	<0.2	4.1 J	570 J	<20	<10	24,000	<25	<10	<20
	10/19/2016	26 J	<20	<20	73	<4	<5	59,000	<10	<10	<20	18 J	<10	21,000	200	<0.2	2.7 J	780 J	<20	<10	26,000	<25	<10	<20
	4/24/2017	<200	<20	<20	27	<4	<5	62,000	<10	<10	<20	<50	3.9 J	25,000	<10	<0.2	<40	570 J	<20	<10	24,000	<25	<10	<20
	11/7/2017	<200	<20	<15	70	<2	<2	58,000	<4	<4	<10	<50	<10	23,000	46	<0.2	<10	630	<25	<6	25,000	<20	<5	2.6 J
	6/5/2018	<200	<20	<20	23	<4	<5	53,000	<10	<10	2.7 J	<50	<10	20,000	<10	<0.2	4.6 J	450 J	<20	<10	23,000	<25	<10	<20
	12/12/2018	<200	<20	<20	23	<4	<5	60,000	1.7 J	<10	<20	<50	<10	23,000	<10	<0.2	<40	540 J	<20	<10	27,000	<25	<10	<20
	5/30/2019	29 JB	<20	<20	23	<4	<5	51,000	<10	<10	1.9 J	<50	<10	20,000	9.5 J	<0.2	<40	460 J	<20	<10	24,000	<25	<10	40
	10/17/2019	<200	<20	<20	93	<4	<5	62,000	<10	<10	1.8 J	<50	<10	22,000	120	<0.2	<40	760 J	<20	<10	26,000	<25	1.5 J	<20
	6/23/2020	<200	<20	<20	31	<4	<5	56,																

TABLE 11A
Groundwater and Surface Water Analytical Results
Historic Detections of Dissolved Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		Aluminum (ug/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Beryllium (ug/L)	Cadmium (ug/L)	Calcium (ug/L)	Chromium (ug/L)	Cobalt (ug/L)	Copper (ug/L)	Iron (ug/L)	Lead (ug/L)	Magnesium (ug/L)	Manganese (ug/L)	Mercury (ug/L)	Nickel (ug/L)	Potassium (ug/L)	Selenium (ug/L)	Silver (ug/L)	Sodium (ug/L)	Thallium (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
FRACTION		Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	
NYSDEC CLASS C SURFACE WATER		100	NGV	150	NGV	NGV	NGV	NGV	5	NGV	300	NGV	NGV	NGV	0.77	NGV	NGV	4.6	0.1	NGV	8	14	NGV	
SW-1	4/13/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/11/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/4/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/8/2012	< 200	< 20	< 20	54	< 4.0	< 5.0	63,000	< 10	< 10	< 20	100	< 10	7,500	3,000	< 0.20	< 40	490 J	< 20	< 10	20,000	< 25	< 10	7.3 J
	10/24/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/17/2013	< 200	< 20	< 20	37	< 4.0	< 5.0	42,000	< 10	< 10	< 20	57	< 10	5,300	93	< 0.20	< 40	1,100	< 20	< 10	16,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	< 20	44	< 4.0	< 5.0	52,000	< 10	< 10	< 20	75	< 10	7,000	330	< 0.20	< 40	2,300	< 20	< 10	16,000	< 25	< 10	< 20
	4/30/2014	< 200	< 20	< 20	24	< 4.0	< 5.0	25,000	< 10	< 10	< 20	60	< 10	3,400	27	< 0.20	< 40	1,100	< 20	< 10	9,400	< 25	< 10	< 20
	10/23/2014	< 200	< 20	< 20	28	< 4.0	< 5.0	35,000	< 10	< 10	6.1 J	56	< 10	4,800	39	< 0.20	< 40	3,200	< 20	< 10	15,000	< 25	< 10	< 20
	4/15/2015	< 200	< 20	< 20	29	< 4.0	< 5.0	35,000	< 10	< 10	< 20	25 J	< 10	4,400	24	< 0.20	< 40	1,100	< 20	< 10	16,000	< 25	< 10	< 20
	11/11/2015	< 200	< 20	< 20	25	< 4.0	< 5.0	31,000	< 10	< 10	5.6 J	87	< 10	4,300	28	< 0.20	< 40	3,100	< 20	< 10	13,000	< 25	< 10	< 20
	4/26/2016	230	< 20	< 20	59	< 4.0	< 5.0	48,000	< 10	< 10	31	1,800	< 10	6,100	1,300	0.28	3.7 J	1,200	< 20	< 10	16,000	< 25	< 10	11 J
	10/19/2016	31 J	< 20	< 20	120	< 4.0	< 5.0	65,000	< 10	< 10	7.5 J	49 J	< 10	8,000	3,100	< 0.20	< 40	2,000	< 20	< 10	8,700	< 25	< 10	< 20
	4/24/2017	< 200	< 20	< 20	31	< 4.0	< 5.0	34,000	< 10	< 10	6.5 J	70	< 10	3,900	33	< 0.20	< 40	1,000	< 20	< 10	14,000	< 25	< 10	< 20
	11/7/2017	< 200	< 20	< 15	42	< 2.0	< 2.0	45,000	< 4.0	< 4.0	4.9 J	250	< 10	6,200	200	< 0.20	< 10	1,200	< 25	< 6.0	15,000	< 20	< 5.0	3.0 J
	6/5/2018	< 200	< 20	< 20	48	< 4.0	< 5.0	52,000	< 10	< 10	6.1 J	91	< 10	6,200	310	< 0.20	3.2 J	540 J	< 20	< 10	17,000	< 25	< 10	< 20
	12/12/2018	71 J	< 20	< 20	38	< 4.0	< 5.0	45,000	< 10	< 10	28	640	4.0 J	5,100	130	< 0.20	< 40	880 J	< 20	< 10	14,000	< 25	< 10	16 J
	5/30/2019	46 JB	< 20	< 20	31	< 4.0	< 5.0	39,000	< 10	< 10	8.2 J	150	< 10	4,600	83	0.087 J	< 40	810 J	< 20	< 10	16,000	< 25	< 10	31
	10/17/2019	< 200	< 20	< 20	29	< 4.0	< 5.0	23,000	< 10	< 10	11 J	92	< 10	3,300	21	< 0.20	< 40	3,100	< 20	< 10	9,200	< 25	< 10	< 20
	6/24/2020	26 J	< 20	< 20	57	< 4	< 5	57,000	< 10	< 10	5.8 J	80	< 10	6,900	560	< 0.2	< 40	790 J	< 20	< 10	10,000	< 25	1.2 J	< 20
	11/4/2020	< 200	5.3 JB	< 20	38	< 4	< 5	44,000	< 10	< 10	5.7 J	280	< 10	5,800	80	0.083 J	< 40	1,200	< 20	< 10	16,000	< 25	< 10	< 20
	6/30/2021	< 200	< 20	< 20	57	< 4.0	< 5.0	50,000	< 10	< 10	5.4 J	140	< 10	5,800	340	< 0.20	< 40	480 J	< 20	< 10	12,000	< 25	< 10	< 20
	11/18/2021	< 200	< 20	< 20	27	< 4.0	< 5.0	43,000	< 10	< 10	2.3 J	92	< 10	5,200	41	0.14 J	< 40	1,100	< 20	< 10	13,000	< 25	< 10	< 20
	6/8/2022	< 200	< 20	< 20	62	< 4.0	< 5.0	49,000	< 10	< 10	4.4 J	120	< 10	5,600	1,800	< 0.20	< 40	220 J	< 20	< 10	12,000	< 25	< 10	< 20
	10/20/2022	< 200	< 20	< 20	47	< 4.0	< 5.0	50,000	< 10	< 10	14 J	280	< 10	6,100	650	0.15 J	< 40	630 JB	< 20	< 10	16,000	< 25	< 10	11 J
	6/1/2023	< 200	< 20	< 15	63	< 2	< 2	57,000	< 4	< 4	6.6 J	42 J	< 10	6,300	450	< 0.2	< 10	570	< 25	< 6	14,000	< 20	< 5	< 10
	11/8/2023	< 200	< 20	< 15	35	< 2	< 2	43,000	< 4	< 4	2.8 J	130	< 10	4,700	82	< 0.2	< 10	930 B	< 25	< 6	12,000	< 20	< 5	< 10
	6/25/2024	< 200	< 20	< 15	51	< 2	< 2	43,000	< 4	< 4	5.4 J	580	< 10	4,700	300	< 0.2	1.7 JB	640	< 25	< 6	12,000	< 20	< 5	2.3 JB

NOTES:

ug/L = micrograms per liter

Analytes not detected are not included on this table.

NGV - No Guidance Value

660 Exceeds NYSDEC Class GA Groundwater Standard.

340 Exceeds NYSDEC Class C Surface Water Standard

+ - Standard is calculated based on hardness.

< - Indicates the analyte was analyzed for but not detected.

J - The result is less than the reporting limit (RL) but greater or equal to the method detection limit (MDL) and the concentration is an approximate value.

F1 - MS and/or MSD Recovery is outside acceptable limits.

F2 - MS/MSD RPD exceeds control limits.

B - Compound was found in the blank and sample.

-- Not sampled for

TABLE 11B
Groundwater and Surface Water Analytical Results
Historic Detections of Total Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																							
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
		(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	
FRACTION		NGV	3	25	1,000	3	5	NGV	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000	
MW-2B	4/14/2011	<200	<20	<20	45	<4	<5	75,000	<10	<10	<20	<100	<10	8,100	3.9 J	<0.2	<40	920 J	40	<10	5,200	<25	<10	<20	
	10/10/2011	<200	<20	<20	65	<4	<5	87,000	<10	<10	<20	<100	<10	8,700	45	<0.2	<40	1,600	350	<10	6,100	<25	<10	<20	
	4/3/2012	120 J	<20	<20	40	<4	<5	89,000	<10	<10	2 J	220	<10	11,000	55	<0.2	<40	990 J	14 J	<10	6,300	<25	<10	<20	
	10/24/2012	<200	<20	<20	85	<4	<5	52,000	<10	<10	<20	<100	<10	7,300	29	<0.2	<40	1,800	270	<10	7,900	<25	<10	<20	
	4/18/2013	<200	<20	<20	33	<4	<5	68,000	<10	<10	<20	<100	<10	7,300	20	<0.2	<40	860 J	36	3.4 J	4,900	<25	<10	<20	
	11/8/2013	100 J	<20	<20	46	<4	<5	59,000	<10	<10	<20	190	<10	7,400	44	<0.2	<40	1,400	730	<10	6,800	<25	<10	<20	
	4/30/2014	<200	<20	<20	29	<4	<5	65,000	<10	<10	<20	<100	<10	6,300	14	<0.2	<40	760 J	26	<10	4,400	<25	<10	<20	
	10/23/2014	<200	<20	<20	64	<4	<5	62,000	<10	<10	<20	<100	<10	8,100	22	<0.2	<40	2,000	660	<10	7,000	<25	<10	<20	
	4/15/2015	<200	<20	<20	33	<4	<5	72,000	<10	<10	<20	<100	<10	8,500	18	<0.2	<40	980 J	22	<10	5,100	<25	<10	<20	
	11/11/2015	<200	<20	<20	64	<4	<5	54,000	<10	<10	<20	24 J	<10	7,000	7.6 J	<0.2	<40	1,700	1,000	<10	6,600	<25	<10	<20	
	4/26/2016	28 J	<20	<20	36	<4	<5	88,000	<10	<10	<20	54	<10	10,000	20	<0.2	<40	1,100	27	<10	6,400	<25	<10	<20	
	10/19/2016	69 J	<20	<20	79	<4	<5	74,000	<10	<10	<20	92	<10	10,000	53	<0.2	<40	2,200	580	<10	8,100	<25	<10	7.8 J	
	4/24/2017	60 J	<20	<20	33	<4	<5	76,000	<10	<10	<20	98	<10	7,300	37	<0.2	<40	960 J	27	<10	5,700	<25	<10	<20	
	11/7/2017	61 J	<20	<15	78	<2	<2	62,000	<4	<4	<10	38 J	<10	8,700	15	<0.2	<40	1,700	620	<6	6,500	<20	<5	<10	
	6/5/2018	<200	<20	<20	36	<4	<5	88,000	<10	<10	<20	19 J	<10	9,900	11	<0.2	<40	930 J	16 J	<10	5,900	<25	<10	<20	
	5/30/2019	35 J	<20	<20	25	<4	<5	85,000	<10	<10	1.8 J	<50	<10	8,600	5.9 J	<0.2	<40	820 J	<20	<10	6,200	<25	<10	69	
	10/17/2019	<200	<20	<20	48	<4	<5	60,000	<10	<10	<20	45 J	<10	8,200	40	<0.2	2.2 J	1,900	560	<10	5,500	<25	1.2 J	<20	
	6/23/2020	57 JB	<20	<20	21	<4	<5	72,000	<10	<10	2.6 JB	31 J	<10	8,600	230	<0.2	<40	910 J	180 B	<10	5,800	<25	1.8 J	<20	
	11/4/2020	<200	<20	<20	54	<4	<5	67,000	<10	<10	<20	300 B	<10	9,000	22	<0.2	<40	1,800	440	<10	6,500	6.1 J	1.1 J	<20	
	6/30/2021	29 J	<20	<20	96	<4	<5	86,000	<10	<10	<20	400	<10	22,000	480	<0.2	3.3 J	1,600	<20	<10	10,000	<25	1.8 J	10 J	
	11/16/2021	<200	<20	<20	29	<4	<5	87,000	<10	1.1 J	<20	<50	<10	10,000	<10	<0.2	<40	970 J	27	<10	5,400	<25	<10	<20	
	6/8/2022	<200	<20	<20	34	<4	<5	93,000	<10	<10	<20	300	<10	11,000	<10	<0.2	<40	950 JB	19 J	<10	6,100	<25	<10	<20	
	10/20/2022	<200	<20	<20	38	<4	<5	61,000	<10	<10	<20	71 J	<10	8,500	4.9 J	<0.2	<40	1,700	490	<10	6,000	<25	<10	<20	
	6/1/2023	<200	<20	<15	34	<2	<2	95,000	<4	<4	<10	<50	<10	11,000	1.2 J	<0.2	<10	830	21 J	<6	6,200	<20	<5	<10	
	11/8/2023	<200	<20	<15	37	<2	<2	94,000	1.1 J	<4	<10	<50	<10	11,000	1.7 J	<0.2	<10	1,000	63	<6	6,700	<20	<5	<10	
	6/25/2024	<200	<20	<15	30	<2	<2	83,000 B	<4	<4	<10	53 B	<10	10,000	46 B	<0.2	2.4 JB	780	110	<6	6,200	<20	<5	<10	
	MW-15D	4/13/2011	<200	<20	<20	130	<4	<5	62,000	2.5 J	<10	<20	<100	<10	840	<10	<0.2	<40	4,900	150	<10	12,000	<25	<10	<20
		10/10/2011	<200	<20	<20	140	<4	<5	53,000	<10	<10	<20	54 J	<10	4,100	7.9 J	<0.2	<40	4,800	310	<10	8,900	<25	<10	<20
		4/3/2012	350	<20	5.1 J	170	<4	<5	84,000	3.4 J	1.2 J	3.5 J	590	<10	5,300	50	<0.2	<40	4,500	330	<10	9,700	<25	<10	<20
		10/24/2012	410	<20	<20	170	<4	<5	59,000	2.1 J	<10	<20	690	<10	5,300	69	<0.2	<40	5,300	200	<10	8,700	<25	<10	<20
		4/18/2013	580	<20	<20	240	<4	<5	100,000	3.1 J	1.3 J	3.8 J	1,200	<10	6,200	130	<0.2	2.3 J	5,200	240	1.5 J	9,700	<25	<10	<20
		11/8/2013	220	<20	<20	170	<4	<5	94,000	<10	<10	<20	540	<10	12,000	89	<0.2	<40	4,200	430	<10	7,500	<25	<10	<20
		4/30/2014	1,800	<20	9.7 J	750	<4	<5	440,000	7 J	4.1 J	16 J	4,300	6.7 J	20,000	750	<0.2	7.1 J	5,900	380	<10	9,200	<25	3.9 J	35
10/23/2014		<200	<20	<20	120	<4	<5	50,000	<10	<10	<20	82 J	<10	8,500	15	<0.2	<40	4,800	340	<10	7,200	<25	<10	<20	
4/15/2015		1,600	<20	5.3 J	170	<4	<5	71,000	4.8 J	<10	4.6 J	2,500	4.6 J	9,700	150	<0.2	2.9 J	5,100	330	<10	8,100	<25	2.7 J	14 J	
11/11/2015		61 J	<20	<20	97	<4	<5	61,000	<10	<10	<20	110	<10	10,000	18	<0.2	<40	3,500	480	<10	7,000	<25	<10	<20	
4/26/2016		1,300	<20	<20	490	<4	<5	210,000	5.4 J	<10	4.7 J	2,700 F1	<10	11,000 F1	210 F1	<0.2	5.1 J	5,400	330	<10	8,900	<25	2.9 J	16 J	
10/19/2016		48 J	5.4 J	<20	120	<4	<5	54,000	<10	<10	<20	70	<10	9,400	11	<0.2	<40	5,000	400 F1	<10	8,200	<25	<10	<20	
4/24/2017		670	<20	<20	140	<4	<5	69,000	<10	<10	2.7 J	1,200	<10	11,000	96	<0.2	<40	5,300	400	<10	7,900	<25	1.5 J	<20	
4/24/2017		730	<20	<20	150 F1	<4	<5	72,000	<10	<10	2.2 J	1,300 F1	<10	11,000 F1	98	<0.2	<40	5,500	420	<10	8,200	<25	1.5 J	<20	
11/7/2017		190 J	<20	<15	120	<2	<2	46,000	<4	<4	<10	280	<10	11,000	26	<0.2	<10	4,100	370	<6	6,900	<20	<5	3.5 J	
11/7/2017		210	<20	<15	110	<2	<2	43,000	1.6 J	<4	<10	340	<10	11,000	26	<0.2	<10	3,900	350	<6	6,600	<20	<5	3.2 J	
6/5/2018		29 JF1	<20F1	<20F1	100 F1	<4F1	<5F1	59,000	<10F1	<10F1	<20F1	48 JF1	<10F1	12,000 F1	14 F1	<0.2	4.2 JF1	4,500 F1	470	<10F1	7,300 F1	<25F1	<10F1	<20F1	
12/11/2018		61 J	<20	<20	110	<4	<5	50,000	<10	<10	<20	130	<10	12,000	16	<0.2F1	<40	4,400	330	<10	6,900	<25	<10	<20	
5/30/2019		100 JB	<20	<20	100	<4	<5	63,000	<10	<10	<20	210 B	<10	11,000	34	<0.2	<40	3,800	530	<10	7,300	<25	<10	<20	

TABLE 11B
Groundwater and Surface Water Analytical Results
Historic Detections of Total Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
		(ug/L) Total NGV	(ug/L) Total 3	(ug/L) Total 25	(ug/L) Total 1,000	(ug/L) Total 3	(ug/L) Total 5	(ug/L) Total NGV	(ug/L) Total 50	(ug/L) Total 5	(ug/L) Total 200	(ug/L) Total 300	(ug/L) Total 25	(ug/L) Total 35,000	(ug/L) Total 300	(ug/L) Total 0.7	(ug/L) Total 100	(ug/L) Total NGV	(ug/L) Total 8 J	(ug/L) Total 50	(ug/L) Total 20,000	(ug/L) Total 0.5	(ug/L) Total NGV	(ug/L) Total 2,000
FRACTION		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	
NYSDEC CLASS GA GW STANDARD		NGV	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	8 J	50	20,000	0.5	NGV	2,000	
MW-155	4/13/2011	< 200	< 20	< 20	22	< 4	< 5	65,000	< 10	< 10	2 J	94 J	< 10	19,000	250	< 0.2	< 40	290 J	8 J	< 10	66,000	< 25	< 10	< 20
	10/10/2011	< 200	< 20	< 20	28	< 4	< 5	70,000	< 10	< 10	< 20	< 100	< 10	17,000	120	< 0.2	< 40	310 J	10 J	< 10	67,000	< 25	< 10	< 20
	4/3/2012	160 J	< 20	< 20	26	< 4	< 5	62,000	1.2 J	< 10	6.2 J	260	< 10	18,000	90	< 0.2	4.7 J	340 J	6.9 J	< 10	67,000	< 25	< 10	8.7 J
	10/24/2012	150 J	< 20	5.1 J	25	< 4	< 5	63,000	< 10	1.1 J	2.5 J	190	< 10	17,000	650	< 0.2	3.3 J	300 J	31	< 10	64,000	< 25	< 10	< 20
	4/18/2013	< 200	< 20	< 20	23	< 4	< 5	63,000	< 10	< 10	4 J	58 J	< 10	18,000	260	< 0.2	5.1 J	200 J	12 J	2.2 J	61,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	< 20	23	< 4	< 5	70,000	< 10	< 10	< 20	< 100	< 10	18,000	100	< 0.2	< 40	320 J	12 J	< 10	45,000	< 25	< 10	9 J
	4/30/2014	< 200	< 20	< 20	26	< 4	< 5	72,000	< 10	< 10	2 J	75 J	< 10	19,000	230	< 0.2	3.5 J	200 J	9.8 J	< 10	58,000	< 25	< 10	< 20
	10/23/2014	< 200	< 20	< 20	22	< 4	< 5	63,000	< 10	< 10	< 20	< 100	< 10	15,000	120	< 0.2	< 40	470 J	360	< 10	19,000	< 25	< 10	< 20
	4/15/2015	110 J	< 20	5.1 J	24	< 4	< 5	71,000	1.4 J	< 10	4.5 J	150	< 10	19,000	1,100	< 0.2	4.6 J	230 J	16 J	< 10	48,000	< 25	< 10	< 20
	11/11/2015	32 J	< 20	< 20	18	< 4	< 5	74,000	< 10	< 10	< 20	34 J	< 10	19,000	110	< 0.2	< 40	260 J	35	< 10	42,000	< 25	< 10	< 20
	4/26/2016	< 200	< 20	< 20	19	< 4	< 5	70,000	< 10	< 10	3 J	18 J	< 10	19,000	91	< 0.2	2.6 J	230 J	14 J	< 10	45,000	< 25	< 10	< 20
	10/19/2016	49 J	< 20	< 20	20	< 4	< 5	66,000	< 10	< 10	2.6 J	68	< 10	15,000	360	< 0.2	2.3 J	550 J	430	< 10	16,000	< 25	< 10	< 20
	4/24/2017	110 J	< 20	< 20	19	< 4	< 5	56,000	< 10	< 10	< 20	100	< 10	14,000	16	< 0.2	< 40	360 J	74	< 10	27,000	< 25	< 10	< 20
	11/7/2017	< 200	< 20	< 15	19	< 2	< 2	63,000	< 4	< 4	< 10	34 J	< 10	17,000	150	< 0.2	< 10	260 J	80	< 6	28,000	< 20	< 5	1.5 J
	6/5/2018	< 200	< 20	< 20	17	< 4	< 5	70,000	< 10	< 10	< 20	< 50	< 10	19,000	48	< 0.2	3.2 J	200 J	21	< 10	36,000	< 25	< 10	< 20
	12/11/2018	< 200	< 20	< 20	17	< 4	< 5	75,000	< 10	< 10	< 20	21 J	< 10	20,000	73	< 0.2	< 40	220 J	30	< 10	37,000	< 25	< 10	< 20
	5/30/2019	32 J	< 20	< 20	12	< 4	< 5	64,000	< 10	< 10	2.9 J	< 50	< 10	18,000	36	< 0.2	< 40	180 J	< 20	< 10	41,000	< 25	< 10	58
	10/17/2019	< 200	< 20	< 20	26	< 4	< 5	70,000	< 10	< 10	< 20	< 50	< 10	18,000	36	< 0.2	< 40	300 J	200	< 10	25,000	< 25	1.4 J	< 20
	6/23/2020	44 JB	< 20	< 20	11	< 4	< 5	66,000	< 10	< 10	3.2 JB	23 J	< 10	18,000	120	< 0.2	< 40	290 J	89 B	< 10	26,000	< 25	1.3 J	< 20
	11/4/2020	< 200	< 20	< 20	17	< 4	< 5	77,000	< 10	< 10	< 20	410 B	< 10	20,000	60	< 0.2	< 40	220 J	40	< 10	32,000	< 25	1.4 J	< 20
	6/30/2021	< 200	< 20	< 20	22	< 4	< 5	74,000	< 10	< 10	< 20	< 50	< 10	19,000	45	< 0.2	< 40	230 J	26	< 10	26,000	< 25	1.2 J	< 20
	11/18/2021	< 200	< 20	< 20	14	< 4	< 5	72,000	< 10	< 10	2.6 J	< 50	< 10	19,000	68	< 0.2	< 40	200 J	< 20	< 10	31,000	< 25	< 10	< 20
	6/7/2022	< 200	< 20	< 20	19	< 4	< 5	77,000	< 10	< 10	< 20	< 100	< 10	21,000	28	< 0.2	< 40	460 JB	< 20	< 10	35,000 B	< 25	< 10	< 20
	10/20/2022	54 J	< 20	< 20	22	< 4	< 5	72,000	< 10	< 10	< 20	91 J	< 10	18,000	220	< 0.2	< 40	230 J	120	< 10	22,000	< 25	< 10	< 20
	11/7/2023	< 200	< 20	< 15	19	< 2	< 2	76,000	< 4	< 4	< 10	< 50	< 10	19,000	26	< 0.2	< 10	190 J	< 25	< 6	34,000	< 20	< 5	< 10
	6/26/2024	< 200	< 20	< 15	19	< 2	< 2	77,000 B	2.4 JB	< 4	1.7 J	58 B	< 10	19,000	18	< 0.2	3.4 JB	170 J	< 25	< 6	32,000	< 20	< 5	< 10
MW-165	4/13/2011	< 200	< 20	< 20	120	< 4	< 5	88,000	< 10	< 10	2.7 J	160	< 10	25,000	420	< 0.2	< 40	940 J	< 20	< 10	19,000	< 25	< 10	12 J
	10/10/2011	< 200	< 20	6.3 J	110	< 4	< 5	88,000	< 10	< 10	< 20	180	< 10	23,000	280	< 0.2	< 40	970 J	< 20	< 10	18,000	< 25	< 10	10 J
	4/3/2012	< 200	< 20	< 20	110	< 4	< 5	79,000	< 10	< 10	3.3 J	210	< 10	23,000	240	< 0.2	< 40	920 J	< 20	< 10	18,000	< 25	< 10	9.8 J
	10/24/2012	< 200	< 20	< 20	110	< 4	< 5	80,000	< 10	< 10	3.3 J	230	< 10	23,000	940	< 0.2	5.6 J	920 J	< 20	< 10	18,000	< 25	< 10	12 J
	4/17/2013	< 200	< 20	< 20	120	< 4	< 5	81,000	< 10	< 10	< 20	530	< 10	23,000	320	< 0.2	< 40	890 J	< 20	< 10	19,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	< 20	140	< 4	< 5	80,000	< 10	< 10	< 20	1,700	< 10	23,000	500	< 0.2	< 40	860 J	< 20	< 10	17,000	< 25	< 10	< 20
	4/30/2014	< 200	< 20	< 20	120	< 4	< 5	81,000	< 10	< 10	< 20	150	< 10	23,000	61	< 0.2	2.9 J	880 J	< 20	< 10	19,000	< 25	< 10	< 20
	10/23/2014	< 200	< 20	11 J	230	< 4	2.1 J	86,000	< 10	2 J	6.8 J	3,100	< 10	23,000	1,400	< 0.2	5.7 J	1,100	< 20	< 10	17,000	< 25	< 10	20
	4/15/2015	< 200	< 20	< 20	110	< 4	< 5	86,000	< 10	< 10	< 20	260	< 10	24,000	110	< 0.2	< 40	940 J	< 20	< 10	19,000	< 25	< 10	< 20
	11/11/2015	< 200	< 20	< 20	110	< 4	< 5	82,000	< 10	< 10	< 20	900	< 10	23,000	420	< 0.2	2.2 J	890 J	< 20	< 10	17,000	< 25	< 10	< 20
	4/26/2016	< 200	< 20	< 20	96	< 4	< 5	81,000	< 10	< 10	< 20	240	< 10	23,000	71	< 0.2	2.4 J	940 J	< 20	< 10	20,000	< 25	< 10	< 20
	10/19/2016	34 J	< 20	11 J	140	< 4	< 5	87,000	< 10	< 10	< 20	820	< 10	25,000	630	< 0.2	< 40	1,100	< 20	< 10	20,000	< 25	< 10	< 20
	4/24/2017	29 J	< 20	< 20	110	< 4	< 5	90,000	< 10	< 10	< 20	290	< 10	24,000	67	< 0.2	< 40	1,200	< 20	< 10	21,000	< 25	< 10	< 20
	11/7/2017	490	< 20	5.6 J	110	< 2	1.8 J	66,000	1.4 J	< 4	5.6 J	1,900	9.3 J	18,000	260	< 0.2	2.2 J	890	< 25	< 6	14,000	< 20	< 5	12
	6/5/2018	< 200	< 20	< 20	98	< 4	< 5	83,000	< 10	< 10	< 20	200	< 10	24,000	72	< 0.2	6.4 J	900 J	< 20	< 10	18,000	< 25	< 10	< 20
	12/11/2018	36 J	< 20	< 20	97	< 4	< 5	84,000	< 1															

TABLE 11B
Groundwater and Surface Water Analytical Results
Historic Detections of Total Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
		(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total
FRACTION		NGV	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000	
NYSDEC CLASS GA GW STANDARD																								
MW-24D	4/13/2011	< 200	< 20	< 20	82	< 4	< 5	71,000	< 10	< 10	< 20	< 100	< 10	14,000	7.9 J	< 0.2	< 40	1,800	< 20	< 10	7,300	< 25	< 10	< 20
	10/11/2011	< 200	< 20	< 20	90	< 4	< 5	75,000	< 10	< 10	< 20	980	< 10	14,000	140	< 0.2	< 40	1,800	< 20	< 10	6,500	< 25	< 10	< 20
	4/3/2012	380	< 20	< 20	89	< 4	< 5	69,000	< 10	< 10	2.3 J	1,100	< 10	14,000	200	< 0.2	< 40	1,900	< 20	1 J	7,200	< 25	< 10	< 20
	10/24/2012	< 200	< 20	< 20	86	< 4	< 5	69,000	< 10	< 10	< 20	590	< 10	14,000	170	< 0.2	< 40	1,800	< 20	< 10	6,900	< 25	< 10	< 20
	4/17/2013	< 200	< 20	< 20	85	< 4	< 5	69,000	< 10	< 10	< 20	440	< 10	14,000	110	< 0.2	< 40	1,900	< 20	< 10	7,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	< 20	84	< 4	< 5	65,000	< 10	< 10	< 20	160	< 10	13,000	110	< 0.2	< 40	1,600	< 20	< 10	6,300	< 25	< 10	< 20
	4/30/2014	< 200	< 20	< 20	85	< 4	< 5	69,000	< 10	< 10	< 20	310	< 10	14,000	140	< 0.2	2.3 J	1,800	< 20	< 10	7,100	< 25	< 10	13 J
	10/23/2014	< 200	< 20	< 20	91	< 4	< 5	72,000	< 10	< 10	< 20	790	< 10	13,000	270	< 0.2	< 40	1,900	< 20	< 10	6,500	< 25	< 10	40
	4/15/2015	150 J	< 20	< 20	83	< 4	< 5	70,000	< 10	< 10	< 20	540	< 10	13,000	100	< 0.2	< 40	1,900	< 20	< 10	6,900	< 25	< 10	< 20
	11/11/2015	170 J	< 20	< 20	89	< 4	< 5	71,000	< 10	< 10	< 20	630	< 10	13,000	120	< 0.2	< 40	1,800	< 20	< 10	6,700	< 25	< 10	< 20
	4/26/2016	71 J	< 20	< 20	85	< 4	< 5	69,000	< 10	< 10	< 20	590	< 10	14,000	100	< 0.2	< 40	1,900	< 20	< 10	6,900	< 25	< 10	< 20
	10/19/2016	180 J	< 20	< 20	94	< 4	< 5	70,000	< 10	< 10	< 20	870	< 10	14,000	150	< 0.2	< 40	2,000	< 20	< 10	7,000	< 25	< 10	< 20
	4/24/2017	99 J	< 20	< 20	86	< 4	< 5	68,000	< 10	< 10	< 20	580	< 10	13,000	110	< 0.2	< 40	2,100	< 20	< 10	7,300	< 25	< 10	< 20
	11/7/2017	310	< 20	< 15	82	< 2	< 2	58,000	< 4	< 4	< 10	840	< 10	12,000	130	< 0.2	< 10	1,600	< 25	< 6	5,700	< 20	< 5	2.4 J
	6/5/2018	< 200	< 20	< 20	93	< 4	< 5	74,000	< 10	< 10	< 20	500	< 10	14,000	240	< 0.2	3.6 J	2,000	< 20	< 10	7,000	< 25	< 10	< 20
	12/12/2018	150 J	< 20	< 20	88	< 4	< 5	68,000	< 10	< 10	< 20	820	< 10	13,000	140	< 0.2	< 40	1,800	< 20	< 10	6,600	< 25	< 10	< 20
	5/30/2019	98 J	< 20	< 20	87	< 4	< 5	62,000	< 10	< 10	2.8 J	2,800	< 10	12,000	310	< 0.2	< 40	1,800	< 20	< 10	7,000	< 25	< 10	54
	10/17/2019	< 200	< 20	< 20	96	< 4	< 5	65,000 B	< 10	< 10	< 20	91	< 10	13,000	110	< 0.2	< 40	1,700	< 20	< 10	6,000	< 25	1 J	< 20
	6/23/2020	61 J	< 20	< 20	88	< 4	< 5	65,000 B	< 10	< 10	< 20	760	< 10	13,000	200	< 0.2	< 40	1,800	< 20	< 10	5,900	< 25	1 J	< 20
	11/5/2020	< 200	< 20	< 20	85	< 4	< 5	63,000	< 10	< 10	< 20	150 B	< 10	12,000	110	< 0.2	< 40	1,600	< 20	< 10	6,000	< 25	< 10	< 20
	11/18/2021	89 J	< 20	< 20	86	< 4	< 5	64,000	< 10	1.2 J	< 20	310	< 10	13,000	120	< 0.2	< 40	1,900	< 20	< 10	5,800	< 25	< 10	< 20
	6/8/2022	68 J	< 20	< 20	94	< 4	< 5	67,000	< 10	< 10	< 20	130	< 10	14,000	120	< 0.2	< 40	1,900 B	< 20	< 10	6,800 B	< 25	< 10	< 20
	10/20/2022	< 200	< 20	< 20	86	< 4	< 5	61,000	< 10	< 10	< 20	160	< 10	12,000	110	< 0.2	< 40	1,600	< 20	< 10	6,100	< 25	< 10	< 20
	6/1/2023	< 200	< 20	< 15	97	< 2	< 2	68,000	< 4	< 4	< 10	150	< 10	13,000	87	< 0.2	< 10	1,800	< 25	< 6	6,500	< 20	< 5	< 10
	11/8/2023	78 J	< 20	< 15	94	< 2	< 2	65,000	< 4	< 4	< 10	160	< 10	13,000	110	< 0.2	< 10	1,900	< 25	< 6	6,500	< 20	< 5	< 10
	6/26/2024	280	< 20	< 15	96	< 2	< 2	66,000 B	1.4 JB	< 4	< 10	190 B	< 10	12,000	88 B	< 0.2	2.2 JB	1,700	< 25	< 6	6,800	< 20	< 5	1,300
MW-24S	4/13/2011	< 200	< 20	< 20	44	< 4	< 5	80,000	< 10	< 10	< 20	< 100	< 10	23,000	2.6 J	< 0.2	< 40	470 J	< 20	< 10	12,000	< 25	< 10	< 20
	10/11/2011	< 200	< 20	14 J	45	< 4	< 5	85,000	< 10	< 10	< 20	930	< 10	23,000	100	< 0.2	< 40	550 J	< 20	< 10	12,000	< 25	< 10	< 20
	4/3/2012	< 200	< 20	11 J	36	< 4	< 5	77,000	< 10	< 10	< 20	870	< 10	24,000	120	< 0.2	< 40	440 J	< 20	< 10	13,000	< 25	< 10	< 20
	10/24/2012	< 200	< 20	21	84	< 4	< 5	67,000	< 10	< 10	< 20	750	< 10	16,000	190	< 0.2	< 40	620 J	< 20	< 10	11,000	< 25	< 10	< 20
	4/17/2013	< 200	5.5 J	< 20	42	< 4	< 5	78,000	< 10	< 10	< 20	270	< 10	24,000	99	< 0.2	< 40	460 J	< 20	< 10	13,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	14 J	71	< 4	< 5	67,000	< 10	< 10	< 20	800	< 10	16,000	190	< 0.2	< 40	570 J	< 20	< 10	11,000	< 25	< 10	< 20
	4/30/2014	< 200	< 20	< 20	39	< 4	< 5	78,000	< 10	< 10	< 20	140	< 10	24,000	30	< 0.2	3.1 J	430 J	< 20	< 10	14,000	< 25	< 10	< 20
	10/23/2014	2,600	< 20	93	170	0.3 J	< 5	200,000	12	11	27	15,000	25	27,000	3,300	< 0.2	< 40	960 J	< 20	< 10	12,000	< 25	7.5 J	150
	4/15/2015	< 200	< 20	15 J	41	< 4	< 5	77,000	< 10	< 10	< 20	470	< 10	22,000	57	< 0.2	< 40	470 J	< 20	< 10	15,000	< 25	< 10	< 20
	11/11/2015	52 J	< 20	15 J	81	< 4	< 5	65,000	< 10	< 10	< 20	1,100	< 10	13,000	190	< 0.2	< 40	610 J	< 20	< 10	11,000	< 25	< 10	< 20
	4/26/2016	36 J	< 20	< 20	41	< 4	< 5	77,000	< 10	< 10	< 20	210	< 10	24,000	27	< 0.2	2.2 J	460 J	< 20	< 10	16,000	< 25	< 10	< 20
	10/19/2016	37 J	< 20	22	78	< 4	< 5	61,000	< 10	< 10	< 20	620	< 10	13,000	160	< 0.2	< 40	640 J	< 20	< 10	11,000	< 25	< 10	< 20
	4/24/2017	< 200	< 20	17 J	51	< 4	< 5	71,000	< 10	< 10	< 20	500	< 10	20,000	30	< 0.2	< 40	560 J	< 20	< 10	16,000	< 25	< 10	< 20
	11/7/2017	68 J	< 20	16	53	< 2	< 2	37,000	< 4	< 4	< 10	420	< 10	7,400	190	< 0.2	< 10	410 J	< 25	< 6	7,100	< 20	< 5	3.1 J
	6/5/2018	< 200	< 20	26	59	< 4	< 5	72,000	< 10	< 10	< 20	860	< 10	20,000	410	< 0.2	3.1 J	510 J	< 20	< 10	14,000	< 25	< 10	< 20
	12/12/2018	< 200	< 20	< 20	41	< 4	< 5	86,000	< 10	< 10	< 20	93	< 10	25,000	19	< 0.2	< 40	580 J	< 20	< 10	16,000	< 25	< 10	< 20
	5/30/2019	95 J</																						

TABLE 11B
Groundwater and Surface Water Analytical Results
Historic Detections of Total Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
		(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total	(ug/L) Total
FRACTION		NGV	3	25	1,000	3	5	50	5	200	300	25	35,000	300	0.7	100	NGV	10	50	20,000	0.5	NGV	2,000	
NYSDEC CLASS GA GW STANDARD																								
MW-26D	4/13/2011	< 200	< 20	19 J	53	< 4	< 5	40,000	< 10	< 10	< 20	< 100	< 10	6,400	< 10	< 0.2	< 40	740 J	< 20	< 10	19,000	< 25	< 10	< 20
	10/11/2011	< 200	< 20	23	50	< 4	< 5	40,000	< 10	< 10	< 20	65 J	< 10	6,100	19	< 0.2	< 40	720 J	< 20	< 10	17,000	< 25	< 10	< 20
	4/3/2012	< 200	< 20	20	49	< 4	< 5	37,000	< 10	< 10	< 20	170	< 10	6,200	27	< 0.2	< 40	710 J	< 20	< 10	18,000	< 25	< 10	< 20
	10/24/2012	< 200	< 20	20	47	< 4	< 5	37,000	< 10	< 10	< 20	< 100	< 10	6,200	< 10	< 0.2	< 40	690 J	< 20	< 10	18,000	< 25	< 10	< 20
	4/17/2013	< 200	< 20	26	55	< 4	< 5	41,000	< 10	< 10	< 20	230	< 10	6,800	150	< 0.2	< 40	690 J	< 20	< 10	16,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	20	54	< 4	< 5	44,000	< 10	< 10	< 20	240	< 10	7,400	170	< 0.2	< 40	680 J	< 20	< 10	10,000	< 25	< 10	< 20
	4/30/2014	< 200	< 20	20	54	< 4	< 5	42,000	< 10	< 10	< 20	110	< 10	7,100	20	< 0.2	< 40	720 J	< 20	< 10	13,000	< 25	< 10	< 20
	10/23/2014	< 200	< 20	22	53	< 4	< 5	44,000	< 10	< 10	< 20	96 J	< 10	6,800	25	< 0.2	< 40	730 J	< 20	< 10	12,000	< 25	< 10	< 20
	4/15/2015	< 200	< 20	27	52	< 4	< 5	43,000	< 10	< 10	< 20	< 100	< 10	6,800	19	< 0.2	< 40	710 J	< 20	< 10	11,000	< 25	< 10	< 20
	11/11/2015	46 J	< 20	52	57	< 4	< 5	45,000	< 10	< 10	< 20	950	< 10	6,900	110	< 0.2	< 40	680 J	< 20	< 10	11,000	< 25	< 10	< 20
	4/26/2016	30 J	< 20	24	51	< 4	< 5	44,000	< 10	< 10	< 20	220	< 10	7,200	28	< 0.2	< 40	720 J	< 20	< 10	11,000	< 25	< 10	< 20
	10/19/2016	37 J	< 20	30	52	< 4	< 5	46,000	< 10	< 10	< 20	120	< 10	7,400	17	< 0.2	< 40	780 J	< 20	< 10	12,000	< 25	< 10	8.1 J
	4/24/2017	< 200	< 20	25	49	< 4	< 5	44,000	< 10	< 10	< 20	70	< 10	7,200	14	< 0.2	< 40	830 J	< 20	< 10	12,000	< 25	< 10	< 20
	11/7/2017	78 J	< 20	21	44	< 2	< 2	37,000	1.1 J	< 4	< 10	130	< 10	6,200	28	< 0.2	< 10	530	< 25	< 6	9,000	< 20	< 5	1.9 J
	6/5/2018	< 200	< 20	24	51	< 4	< 5	46,000	< 10	< 10	< 20	< 50	< 10	7,500	2 J	< 0.2	< 40	720 J	< 20	< 10	11,000	< 25	< 10	< 20
	12/12/2018	< 200	< 20	25	48	< 4	< 5	44,000	< 10	< 10	< 20	120	< 10	7,200	22	< 0.2	< 40	650 J	< 20	< 10	9,700	< 25	< 10	< 20
	5/30/2019	95 J	< 20	27	50	< 4	< 5	42,000	< 10	< 10	2.5 J	440	< 10	7,300	100	< 0.2	< 40	770 J	< 20	< 10	10,000	< 25	< 10	64
	10/17/2019	< 200	< 20	25	58	< 4	< 5	43,000 B	< 10	< 10	3.1 J	< 50	4 J	7,000	120	< 0.2	< 40	670 J	< 20	< 10	8,100	< 25	< 10	< 20
	6/23/2020	46 JB	< 20	27	49	< 4	< 5	44,000	< 10	< 10	2.6 JB	150	< 10	7,500	95	< 0.2	< 40	710 J	< 20	< 10	9,500	< 25	< 10	< 20
	11/5/2020	< 200	< 20	24	52	< 4	< 5	46,000	< 10	< 10	< 20	150 B	< 10	7,500	54	< 0.2	< 40	640 J	< 20	< 10	9,200	< 25	< 10	< 20
	11/18/2021	< 200	< 20	21	52	< 4	< 5	50,000	< 10	1.1 J	< 20	310	< 10	8,800	110	< 0.2	< 40	970 J	< 20	< 10	7,100	< 25	< 10	< 20
	6/8/2022	< 200	< 20	22	57	< 4	< 5	46,000	< 10	< 10	< 20	< 100	< 10	7,500	9.2 J	< 0.2	< 40	810 JB	< 20	< 10	8,700	< 25	< 10	< 20
	10/20/2022	< 200	< 20	23	53	< 4	< 5	43,000	< 10	< 10	< 20	85 J	< 10	7,100	11	< 0.2	< 40	650 J	< 20	< 10	8,400	< 25	< 10	< 20
	6/1/2023	< 200	< 20	23	59	< 2	< 2	48,000	< 4	< 4	< 10	31 J	< 10	7,700	8.7	< 0.2	< 10	690	< 25	< 6	9,000	< 20	< 5	< 10
	11/8/2023	< 200	< 20	27	60	< 2	< 2	47,000	< 4	< 4	< 10	22 J	< 10	7,900	8.4	< 0.2	< 10	730	< 25	< 6	9,400	< 20	< 5	< 10
	6/26/2024	< 200	< 20	27	58	< 2	< 2	47,000 B	< 4	< 4	< 10	65 B	< 10	7,300	15	< 0.2	2.3 JB	630	< 25	< 6	9,000	< 20	< 5	< 10
MW-26S	4/13/2011	< 200	< 20	< 20	46	< 4	< 5	65,000	< 10	< 10	< 20	< 100	< 10	26,000	< 10	< 0.2	< 40	600 J	< 20	< 10	27,000	< 25	< 10	< 20
	10/11/2011	350	< 20	< 20	32	< 4	< 5	70,000	< 10	< 10	< 20	800	< 10	23,000	310	< 0.2	< 40	560 J	< 20	< 10	26,000	< 25	< 10	9.9 J
	4/3/2012	280	< 20	< 20	37	< 4	< 5	58,000	1.2 J	< 10	2.5 J	320	< 10	22,000	160	< 0.2	< 40	550 J	< 20	< 10	27,000	< 25	< 10	< 20
	10/24/2012	< 200	< 20	< 20	24	< 4	< 5	62,000	< 10	< 10	< 20	< 100	< 10	25,000	22	< 0.2	< 40	590 J	< 20	< 10	26,000	< 25	< 10	< 20
	4/17/2013	< 200	< 20	< 20	30	< 4	< 5	61,000	< 10	< 10	< 20	50 J	< 10	24,000	27	< 0.2	< 40	510 J	< 20	1.2 J	26,000	< 25	< 10	< 20
	11/8/2013	170 J	< 20	< 20	32	< 4	< 5	61,000	< 10	< 10	< 20	100	< 10	23,000	28	< 0.2	< 40	580 J	< 20	< 10	25,000	< 25	< 10	< 20
	4/30/2014	< 200	< 20	< 20	34	< 4	< 5	58,000	< 10	< 10	< 20	87 J	< 10	21,000	22	< 0.2	4.8 J	480 J	< 20	< 10	25,000	< 25	< 10	16 J
	10/23/2014	< 200	< 20	< 20	79	< 4	< 5	64,000	< 10	< 10	< 20	< 100	< 10	22,000	190	< 0.2	< 40	800 J	< 20	< 10	26,000	< 25	< 10	< 20
	4/15/2015	< 200	< 20	< 20	28	< 4	< 5	61,000	< 10	< 10	< 20	< 100	< 10	23,000	41	< 0.2	< 40	530 J	< 20	< 10	24,000	< 25	< 10	< 20
	11/11/2015	49 J	< 20	< 20	21	< 4	< 5	58,000	< 10	< 10	< 20	62	< 10	20,000	29	< 0.2	2.4 J	470 J	< 20	< 10	24,000	< 25	< 10	< 20
	4/26/2016	110 J	< 20	< 20	30	< 4	< 5	61,000	< 10	< 10	2.3 J	150	< 10	24,000	71	< 0.2	2.2 J	580 J	< 20	< 10	24,000	< 25	< 10	< 20
	10/19/2016	130 J	< 20	< 20	79	< 4	< 5	64,000	< 10	< 10	< 20	120	< 10	22,000	290	< 0.2	2.7 J	840 J	< 20	< 10	28,000	< 25	< 10	< 20
	4/24/2017	< 200	< 20	< 20	24	< 4	< 5	56,000	< 10	< 10	< 20	39 J	< 10	21,000	19	< 0.2	< 40	590 J	< 20	< 10	23,000	< 25	< 10	< 20
	11/7/2017	170 J	< 20	< 15	61	< 2	< 2	53,000	2 J	< 4	< 10	130	< 10	20,000	80	< 0.2	< 10	590	< 25	< 6	22,000	< 20	< 5	2.7 J
	6/5/2018	< 200	< 20	< 20	21	< 4	< 5	49,000	< 10	< 10	< 20	180	< 10	18,000	6.4 J	< 0.2	2.3 J	390 J	< 20	< 10	21,000	< 25	< 10	< 20
	12/12/2018	44 J	< 20	< 20	25	< 4	< 5	58,000	< 10	< 10	< 20	52	< 10	21,000	69	< 0.2	< 40	500 J	12 J	< 10	24,000	< 25	< 10	< 20
	5/30/2019	59 J	< 20	< 20	27	< 4	< 5	53,000																

TABLE 11B
Groundwater and Surface Water Analytical Results
Historic Detections of Total Metals – 2011 through 2024
Hercules Site - Port Ewen, New York

Well ID	Date	GROUNDWATER ANALYTICAL DATA																						
		Aluminum (ug/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Beryllium (ug/L)	Cadmium (ug/L)	Calcium (ug/L)	Chromium (ug/L)	Cobalt (ug/L)	Copper (ug/L)	Iron (ug/L)	Lead (ug/L)	Magnesium (ug/L)	Manganese (ug/L)	Mercury (ug/L)	Nickel (ug/L)	Potassium (ug/L)	Selenium (ug/L)	Silver (ug/L)	Sodium (ug/L)	Thallium (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
FRACTION		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
NYSDEC CLASS C SURFACE WATER		100	NGV	150	NGV	NGV	NGV	NGV	5	NGV	300	NGV	NGV	NGV	0.77	NGV	NGV	4.6	0.1	NGV	8	14	NGV	
SW-1	4/13/2011	240	< 20	< 20	33	< 4	< 5	53,000	< 10	< 10	8.1 J	380	< 10	7,200	60	< 0.2	< 40	1,300	< 20	< 10	56,000	< 25	< 10	< 20
	10/11/2011	1,800	< 20	6.0 J	110	< 4.0	< 5.0	40,000	< 10	4.3 J	670	7,500	25	7,000	3,700	0.11 J	7.0 J	2,200	< 20	< 10	14,000	< 25	6.1 J	170
	4/4/2012	4,000	< 20	8.2 J	180	0.26 J	< 5.0	46,000	5.4 J	4.2 J	130	23,000	19	6,200	3,400	1.0	5.4 J	1,800	< 20	< 10	17,000	< 25	9.2 J	50
	8/8/2012	1,800	< 20	< 20	160	< 4.0	< 5.0	67,000	2.3 J	1.6 J	73	7,500	7.3 J	8,000	4,600	< 0.20	3.0 J	850 J	< 20	< 10	20,000	< 25	4.0 J	26
	10/24/2012	< 200	< 20	< 20	34	< 4.0	< 5.0	39,000	< 10	< 10	6.1 J	250	< 10	5,400	64	< 0.20	< 4.0	1,800	< 20	< 10	16,000	< 25	< 10	< 20
	4/17/2013	< 200	< 20	< 20	35	< 4.0	< 5.0	41,000	< 10	< 10	5.7 J	140	< 10	5,300	95	< 0.20	< 4.0	1,100	< 20	< 10	15,000	< 25	< 10	< 20
	11/8/2013	< 200	< 20	< 20	47	< 4.0	< 5.0	50,000	< 10	< 10	8.4 J	1,100	< 10	6,500	400	< 0.20	< 4.0	2,200	< 20	< 10	14,000	< 25	< 10	9.2 J
	4/30/2014	380	< 20	< 20	26	< 4.0	< 5.0	25,000	< 10	< 10	7.7 J	450	< 10	3,400	40	< 0.20	< 4.0	1,100	7.0 J	< 10	8,900	< 25	< 10	< 20
	10/23/2014	< 200	< 20	< 20	31	< 4.0	< 5.0	38,000	< 10	< 10	7.5 J	340	< 10	5,000	54	< 0.20	< 4.0	3,300	7.0 J	< 10	14,000	< 25	< 10	< 20
	4/15/2015	< 200	< 20	< 20	30	< 4.0	< 5.0	37,000	< 10	< 10	4.7 J	110	< 10	4,500	30	< 0.20	< 4.0	1,100	< 20	< 10	16,000	< 25	< 10	< 20
	11/11/2015	140 J	< 20	< 20	28	< 4.0	< 5.0	33,000	< 10	< 10	8.0 J	360	< 10	4,500	37	< 0.20	< 4.0	3,100	< 20	< 10	13,000	< 25	< 10	< 20
	4/26/2016	2,900	< 20	< 20	180	0.13 J	< 5.0	50,000	3.0 J	3.3 J	290	12,000	20	6,400	7,000	2.4	5.8 J	1,600	< 20	< 10	16,000	< 25	6.2 J	62
	10/19/2016	1,100	< 20	< 20	150	< 4.0	< 5.0	65,000	< 10	< 10	38	3,700	< 10	8,100	3,800	0.22	< 4.0	2,200	< 20	< 10	8,700	< 25	2.0 J	12 J
	4/24/2017	93 J	< 20	< 20	38	< 4.0	< 5.0	36,000	< 10	< 10	14 J	440	< 10	4,200	250	< 0.20	< 4.0	1,200	< 20	< 10	15,000	< 25	< 10	< 20
	11/7/2017	5,600	< 20	< 15	130	< 2.0	0.70 J	45,000	6.4	4.7	470	14,000	27	6,900	1,700	3.9	8.8 J	1,700	< 25	< 6.0	14,000	< 20	11	96
	6/5/2018	83 J	< 20	< 20	45	< 4.0	< 5.0	46,000	< 10	< 10	24	830	< 10	5,400	310	< 0.20	< 4.0	460 J	< 20	< 10	14,000	< 25	< 10	< 20
	12/12/2018	120 J	< 20	< 20	33	< 4.0	< 5.0	43,000	< 10	< 10	22	380	< 10	5,000	77	< 0.20	< 4.0	870 J	< 20	< 10	14,000	< 25	< 10	9.6 J
	5/30/2019	90 J	< 20	< 20	31	< 4.0	< 5.0	40,000	< 10	< 10	17 J	450	9.2 JB	4,800	90	0.14 J	< 4.0	900 J	< 20	< 10	17,000	< 25	< 10	35
	10/17/2019	< 200	< 20	< 20	29	< 4.0	< 5.0	23000 B	< 10	< 10	11 J	110	< 10	3,400	21	< 0.20	2.8 J	3,000	< 20	< 10	9,100	< 25	< 10	< 20
	6/24/2020	530 B	< 20	< 20	77	< 4	< 5	56,000	< 10	< 10	140 B	2,400	9.9 J	7,000	750	1.9	< 4.0	910 J	< 20	< 10	11,000	< 25	2.2 J	18 J
	11/4/2020	140 J	6 J	6.2 J	43	< 4	< 5	42,000	< 10	< 10	21	800 B	< 10	5,500	190	0.11 J	< 4.0	1,300	< 20	< 10	15,000	< 25	< 10	< 20
	6/30/2021	130 J	< 20	< 20	67	< 4.0	< 5.0	55,000	< 10	< 10	22	1,600	< 10	6,300	480	0.21	< 4.0	570 J	< 20	< 10	13,000	< 25	< 10	< 20
	11/18/2021	< 200	< 20	< 20	27	< 4.0	< 5.0	40,000	< 10	< 10	4.2 J	350	< 10	5,000	69	< 0.20	< 4.0	1,100	< 20	< 10	12,000	< 25	< 10	< 20
	6/8/2022	100 J	< 20	< 20	60	< 4.0	< 5.0	53,000	< 10	< 10	32	1,500	< 10	6,000	420	0.42	< 4.0	520 JB	< 20	< 10	13000 B	< 25	< 10	< 20
	10/20/2022	5,900	< 20	< 20	110	< 4.0	< 5.0	53,000	7.1 J	4.9 J	450	14,000	22	7,400	1,400	4.1	9.8 J	1,100	< 20	< 10	16,000	< 25	9.5 J	100
	6/1/2023	7,700	< 20	< 15	210	0.52 J	1.6 J	50,000	9.0	7.5	930	19,000	36	6,900	3,500	9.5	12	1,300	< 25	< 6	12,000	< 20	14	150
	11/8/2023	< 200	< 20	< 15	41	< 2	< 2	45,000	1.5 J	< 4	3 J	470	< 10	5,400	200	< 0.2	< 10	1,100	< 25	< 6	14,000	< 20	< 5	2.4 J
	6/25/2024	1,100	< 20	< 15	58	< 2	< 2	44,000 B	2.4 JB	< 4	57	2,200 B	< 10	4,900	300 B	0.46	4.5 JB	820	< 25	< 6	13,000	< 20	< 5	9.2 J

NOTES:

- ug/L = micrograms per liter
- Analytes not detected are not included on this table.
- NGV - No Guidance Value
- + - Standard is calculated based on hardness.
- < - Indicates the analyte was analyzed for but not detected.
- J - The result is less than the reporting limit (RL) but greater or equal to the method detection limit (MDL) and the concentration is an approximate value.
- F1 - MS and/or MSD Recovery is outside acceptable limits.
- F2 - MS/MSD RPD exceeds control limits.
- B - Compound was found in the blank and sample.
- Not sampled for

TABLE 12
SWMU 1/22 SURFACE WATER STATIONS - SUMMARY OF ANALYTICAL RESULTS
FWIA STEP IIC INVESTIGATION
HERCULES SITE
PORT EWEN, NEW YORK

Analyte	Sample Type ¹	Units	Number of Samples	Number of Detections	Minimum Detected Concentration	Maximum Detected Concentration	NYSDEC SWQS	SWMU 1/22 Wetland Complex Stations						Reference Stations		
								PE-SW-01	PE-SW-02	PE-SW-03	PE-SW-04	PE-SW-05	PE-SW-06	PE-SW-07	PE-SW-08	PE-SW-09
Metals																
Cadmium	U	µg/L	9	0	ND	ND	NA	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U
	F	µg/L	9	0	ND	ND	2.52	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U	1.00 ^U
Copper	U	µg/L	9	9	0.33	19	NA	3.30	2.40	18.60	3.00	3.70	5.90	0.81 ^B	1.30 ^B	0.33 ^B
	F	µg/L	9	6	1.90	12	14.1	2.00	1.90 ^B	12.00	2.00	2.60	4.40	0.93 ^{U(2.0)}	1.50 ^{U(2.0)}	0.68 ^{U(2.0)}
Lead	U	µg/L	9	9	0.072	0.96	NA	0.16 ^B	0.15 ^B	0.07 ^B	0.96 ^B	0.58 ^B	0.40 ^B	0.10 ^B	0.46 ^B	0.11 ^B
	F	µg/L	9	9	0.04	0.26	4.9	0.06 ^B	0.19 ^B	0.04 ^B	0.26 ^B	0.25 ^B	0.20 ^B	0.11 ^B	0.18 ^B	0.14 ^B
Mercury	U	µg/L	9	0	ND	ND	NA	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U
	F	µg/L	9	0	ND	ND	0.77	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U	0.20 ^U
Selenium	U	µg/L	9	1	0.49	0.49	NA	5.00 ^U	5.00 ^U	0.49 ^B	5.00 ^U	5.00 ^U	5.00 ^U	5.00 ^U	5.00 ^U	5.00 ^U
	F	µg/L	9	3	0.5	1.4	4.6	5.00 ^U	0.86 ^B	1.40 ^B	0.50 ^B	5.00 ^U	5.00 ^U	5.00 ^U	5.00 ^U	5.00 ^U
Zinc	U	µg/L	9	9	1.3	7.2	NA	3.90 ^B	2.70 ^B	4.90 ^B	7.20	1.70 ^B	2.80 ^B	2.20 ^B	3.70 ^B	1.30 ^B
	F	µg/L	9	6	1.3	4.5	101.2	4.50 ^B	1.90 ^B	3.70 ^B	2.60 ^B	2.30 ^B	4.50 ^B	3.40 ^{U(5.0)}	3.00 ^{U(5.0)}	1.30 ^{U(5.0)}
Other Water Quality Parameters																
Total Suspended Solids	U	mg/L	9	3	2	4	4	4.00 ^U	4.00 ^U	4.00 ^U	4.00 ^U	4.00 ^U	4.00 ^U	2.00 ^B	3.60 ^B	2.00 ^B
Hardness	U	mg/L	9	9	54.7	156	156	133.00	128.00	156.00	132.00	127.00	133.00	54.70	71.60	80.00

Notes:

If the result is > the reporting limit (RL), then [x] is non-detect at the sample concentration; if the result is < the RL, then [x] is non-detect at the RL.

^U Result is a non-detect < the detection limit (DL)

^B Estimated result; less than the RL

^J Method blank contamination

1, U, Unfiltered sample; F, Filtered (0.45µm) sample

ND, Analyte was not detected in any sample

NA, Not applicable; NYSDEC SWQS are based on filtered surface water results.

Table 13
November 2023 Surface Water Data
Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

Chemical	CAS No.	AWQS Chronic	AWQS Acute	Fraction	Unit	Sample ID	PBA-01-SW	PBA-01-SW-Z	PBA-02-SW	PBA-02-SW-Z	PBA-03-SW	DUP-SW	PBA-03-SW-Z	DUP-SW-Z	PBA-04-SW	PBA-04-SW-Z	PBA-BKG-SW	BKG-DUP-SW	PBA-BKG-SW-Z	PBA-BKG-DUP-01-SW-Z	
						Sample Date	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023	10/31/2023
Sample Type (N: Normal; FD: Field Duplicate)						N	N	N	N	N	FD	N	FD	N	N	N	FD	N	FD	N	FD
GENERAL CHEMISTRY																					
Alkalinity, Bicarbonate (As CaCO3)	ALKB	--	--	T	µg/L	100000		100000		110000	110000			110000			180000	190000			
Alkalinity, Carbonate (As CaCO3)	ALKC	--	--	T	µg/L	5000 U		5000 U		5000 U	5000 U			5000 U			5000 U	5000 U			
Alkalinity, Hydroxide (As CaCO3)	ALKH	--	--	T	µg/L	5000 U		5000 U		5000 U	5000 U			5000 U			5000 U	5000 U			
Alkalinity, Phenolphthalein	ALKP	--	--	T	µg/L	5000 U		5000 U		5000 U	5000 U			5000 U			5000 U	5000 U			
Alkalinity, Total (As CaCO3)	ALK	--	--	T	µg/L	100000		100000		110000	110000			110000			180000	190000			
Bromide	24959-67-9	--	--	T	µg/L	81 J		140		110	160			110			360	370			
Chloride (As Cl)	16887-00-6	--	--	T	µg/L	19000		13000		17000	17000			18000			74000	72000			
Dissolved Organic Carbon	DOC	--	--	D	µg/L		8800		9200			8800	9100		67 J	9000			4900	4900	
Fluoride	16984-48-8	--	--	T	µg/L	64 J		67 J		61 J	66 J			67 J			110	130			
Hardness (As CaCO3)	HARD	--	--	T	µg/L	99000		120000 F1		95000 J	130000			110000			170000 F2F1	170000			
pH	PH	--	--	T	SU	7.7 HF		7.6 HF		7.6 HF	7.6 HF			7.9 HF			8.2 HF	8.1 HF			
Sulfate (As SO4)	14808-79-8	--	--	T	µg/L	7600		8600		9100	9700			9600			28000	28000			
Temperature	TEMP	--	--	T	deg c	23 B^2		23 B^2		23 B^2	23 B^2			23 B^2			22 B^2	23 B^2			
Total Dissolved Solids (Residue, Filterable)	TDS	--	--	T	µg/L	150000		150000		170000	170000			170000			340000	330000			
Total Organic Carbon	TOC	--	--	T	µg/L	8600		8800		8700	8800			8600			4800	4700			
Total Suspended Solids	TSS	--	--	T	µg/L	1000		1000 U		1500	1900			2300			21000	20000			
METALS (TOTAL)																					
Calcium	7440-70-2	--	--	T	µg/L	32000		34000		35000	34000			35000			63000	61000			
Copper	7440-50-8	--	--	T	µg/L	6.6		6.8		6.8	7.2			7.1			1.7	1.6			
Magnesium	7439-95-4	--	--	T	µg/L	4700		4700		4900	4800			4900			7300	6700			
Mercury	7439-97-6	--	--	T	µg/L	0.011		0.011		0.011	0.012			0.012			0.0026	0.0033			
Methylmercury	22967-92-6	--	--	T	µg/L	0.0002 B		0.000046 JB		0.0002 B	0.00018 B			0.00017 B			0.000077 BF2	0.000047 JB			
Potassium	7440-09-7	--	--	T	µg/L	1700		1700		1800	1800			1900			2900	2700			
Selenium	7782-49-2	--	--	T	µg/L	0.83 J		0.61 J		0.62 J	0.69 J			0.55 J			0.41 J	0.37 J			
Sodium	7440-23-5	--	--	T	µg/L	9800		10000		13000	13000			14000			50000	48000			
Zinc	7440-66-6	--	--	T	µg/L	4 U		4 U		4 U	4 U			4 U			4.5 J	4.2 J			
METALS (DISSOLVED)																					
Copper	7440-50-8	9.8	14.8	D	µg/L		5.6		5.6			5.8	5.6		5.9				1.2	1.3	
Mercury	7439-97-6	0.77	1.4	D	µg/L		0.0052		0.0043			0.0027	0.0042		0.0055				0.00072	0.00068	
Methylmercury	22967-92-6	--	--	D	µg/L		0.00017 B		0.00016 BF2			0.00015 B	0.00015 B		0.00015 B				0.000063 B	0.000065 B	
Selenium	7782-49-2	--	4.6	D	µg/L		0.75 J		0.69 J			0.62 J	0.63 J		0.59 J				0.47 J	0.41 J	
Zinc	7440-66-6	90.1	127.7	D	µg/L		4 U		4 U			4 U	4 U		4 U				4 U	4 U	

Table 13
November 2023 Surface Water Data
Plantasie Creek Phase 1 Preliminary Bioavailability Assessment Report
Hercules Site
Port Ewen, NY

Notes:

Results that exceeds Site-Specific Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations: Acute, Surface Water are bold and underlined.
Results that exceeds Site-Specific Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations: Chronic, Surface Water are highlighted yellow.

µg/l = microgram per liter

^2 = calibration blank is outside acceptance limits

AWQS = acute water quality standard

B = compound was found in the blank and sample

CAS = Chemical Abstracts Service

D = dissolved

F1 = matrix spike and/or matrix spike duplicate recovery exceeds control limits

F2 = matrix spike/matrix spike duplicate relative percent difference exceeds control limits

HF = parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

J = Result is less than or equal to the method detection limit and concentration is an approximate value

NYSDEC = New York State Department of Environmental Conservation

T = total

U = analyte was analyzed for but not detected

Source:

6 CRR-NY 703.5. Technical support in: NYSDEC. 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.